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THE

CYCLOPÆDIA;

OR,

Universal Dictionary

OF

ARTS, SCIENCES, AND LITERATURE.

PLATES. VOL. IV.

NAVIGATION — WRITING BY CIPHER.

Printed by A. Strahan,
New-Street-Square, London.

THE

CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY

ABRAHAM REES, D.D. F.R.S. F.L.S. *S. Amer. Soc.*

WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.

ILLUSTRATED WITH NUMEROUS ENGRAVINGS,

BY THE MOST DISTINGUISHED ARTISTS.

PLATES. VOL. IV.

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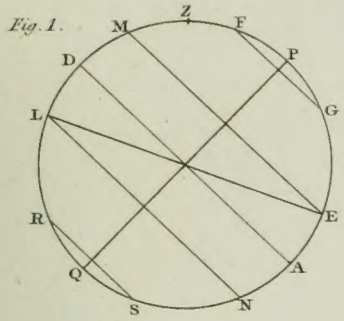
MERIDIAN

Fig. 1.



MERIDIONAL parts

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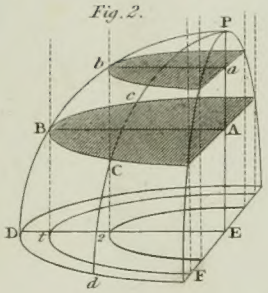

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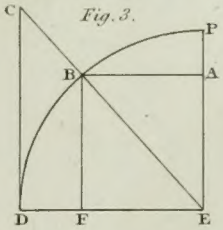

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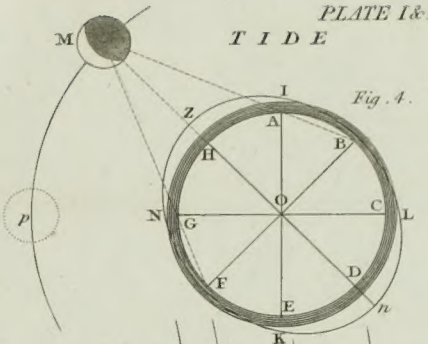

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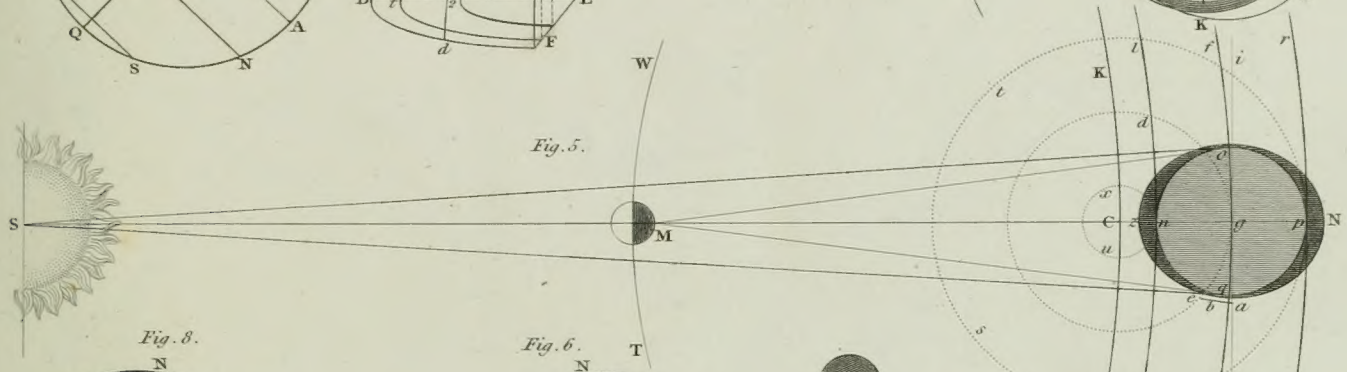

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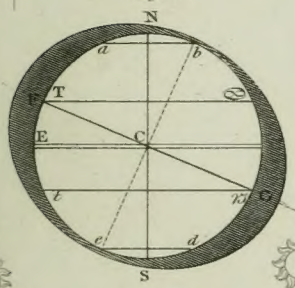

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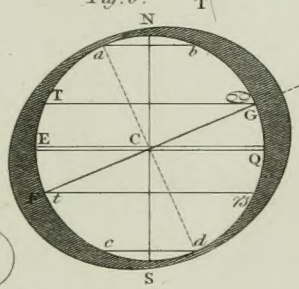

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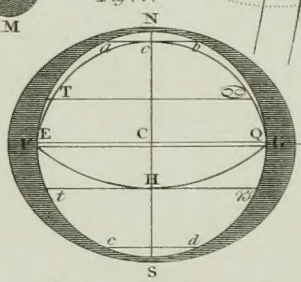
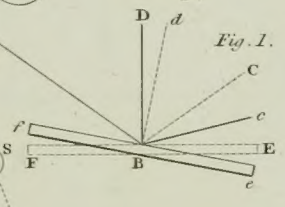


PLATE II.

Fig. 1.



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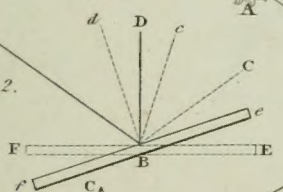
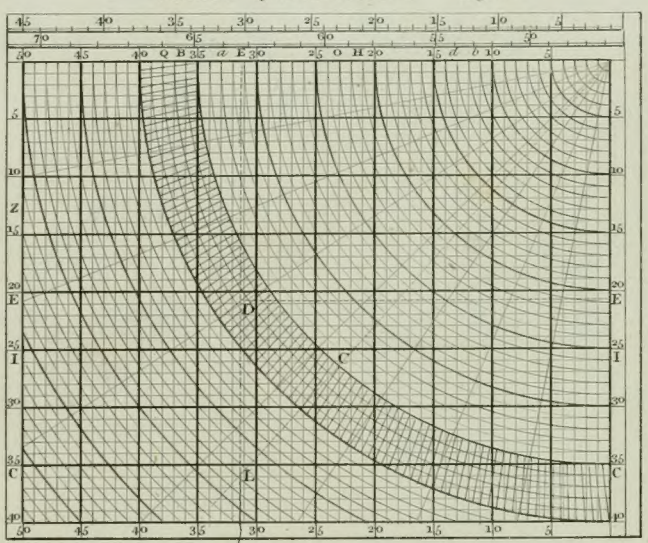
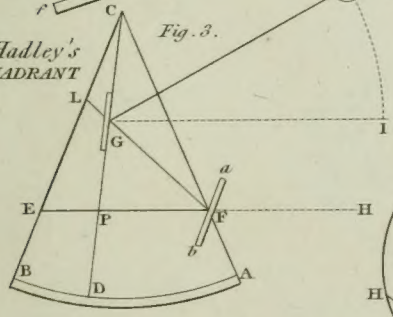


Sinical QUADRANT Fig. 4.



Hadley's QUADRANT

Fig. 3.



VARIATION

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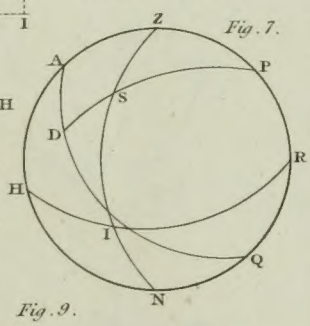

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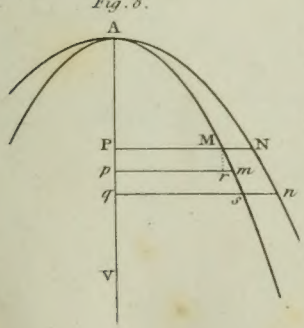

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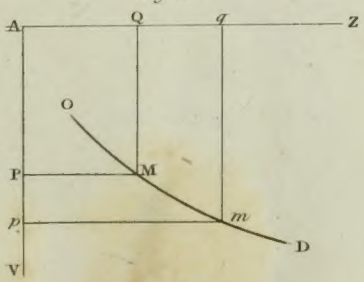

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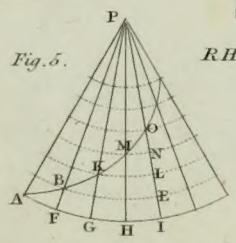

RHUMB Line

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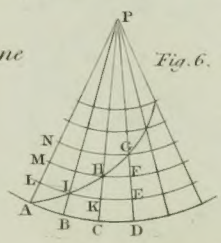

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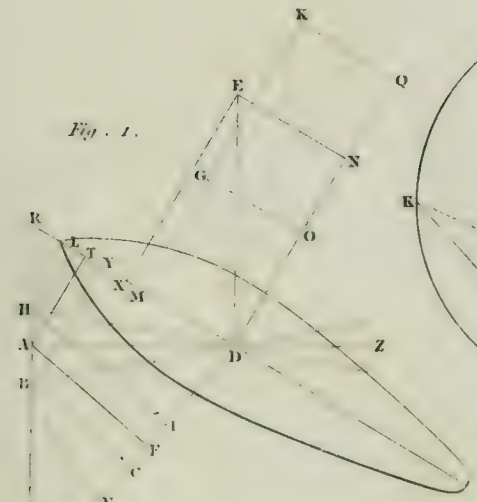
NAVIGATION

RUDDER AND SAILING.



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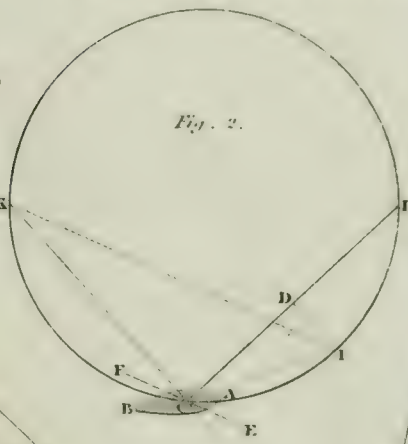

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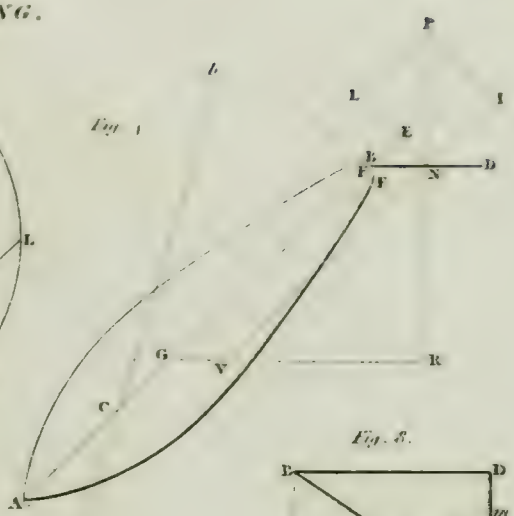

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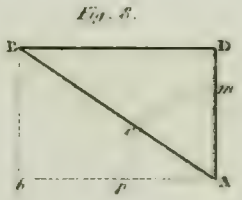

Fig. 8.

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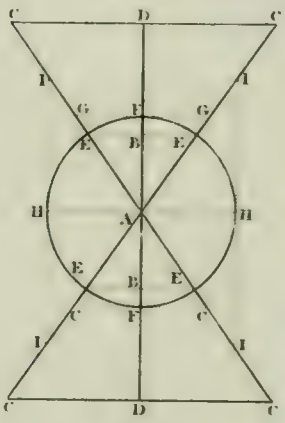

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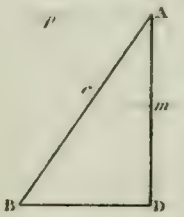

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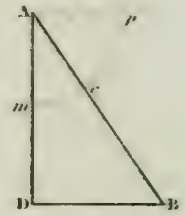

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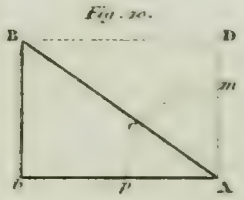

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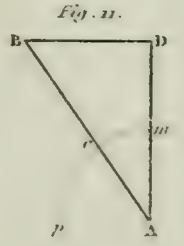

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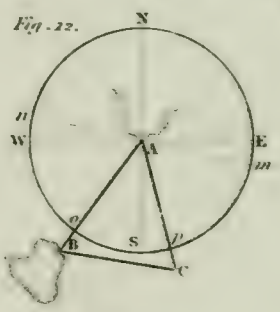

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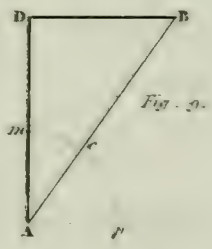

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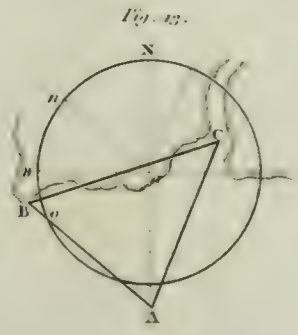

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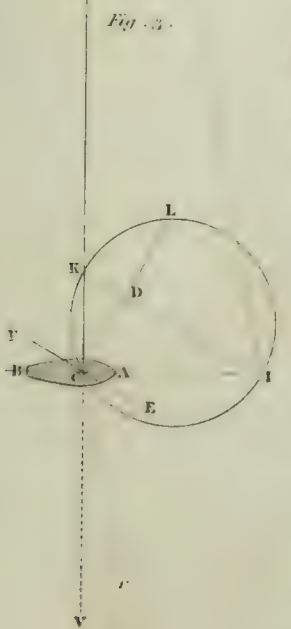

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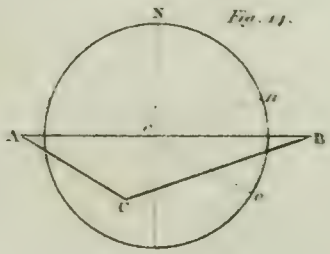

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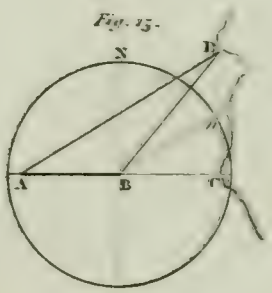

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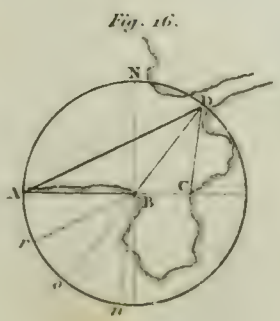

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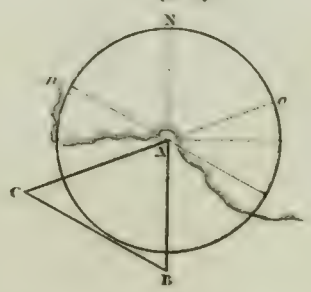

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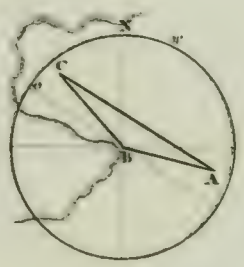

Fig. 18.

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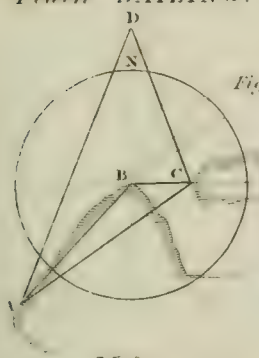
Plain SAILING.

Fig. 19.



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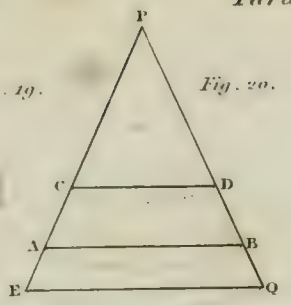

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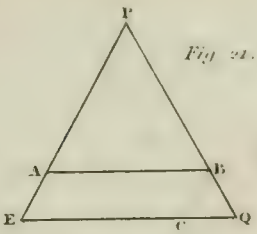

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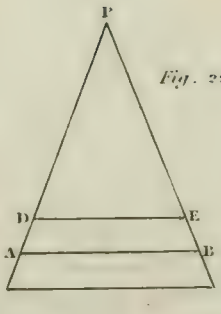

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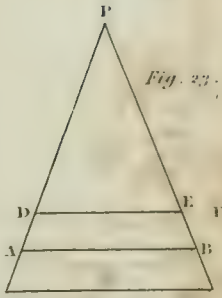

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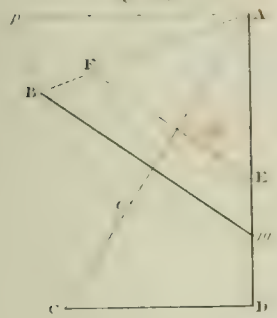

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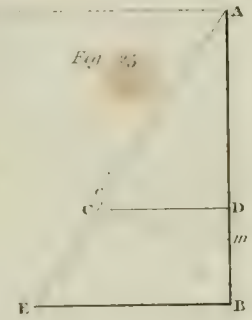

Great Circle SAILING.

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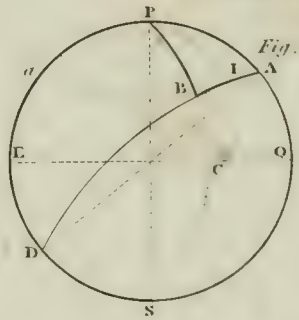

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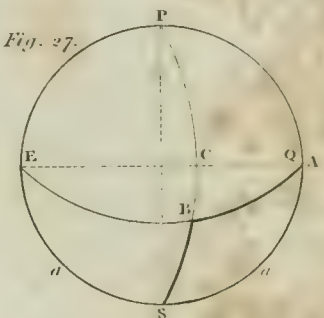

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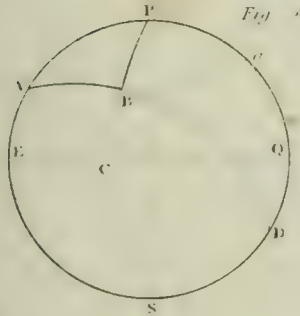

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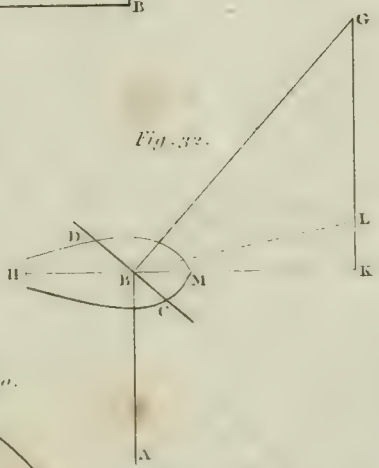

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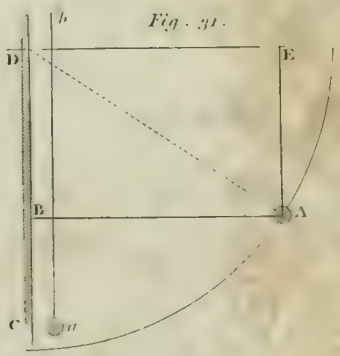

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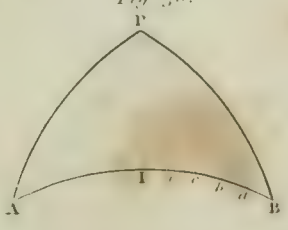

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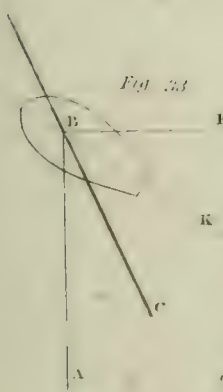
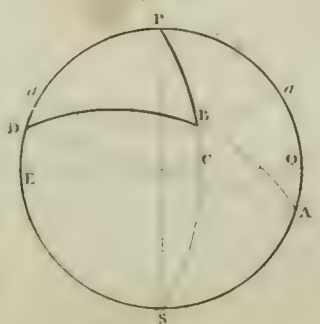


Fig. 34.

Fig. 29.



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TRAVERSE SAILING

Fig. 1.

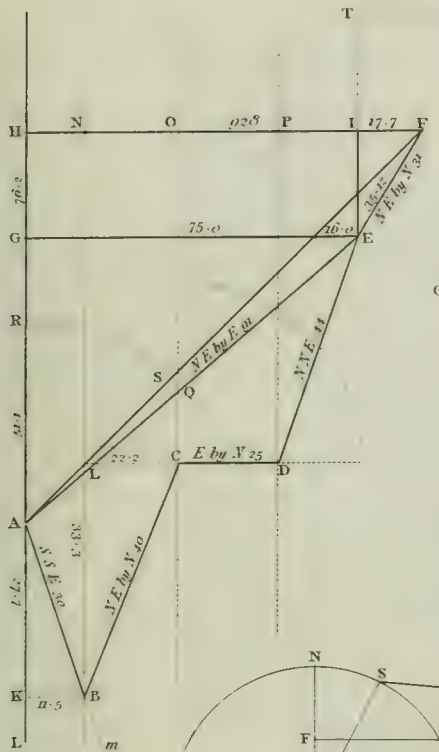
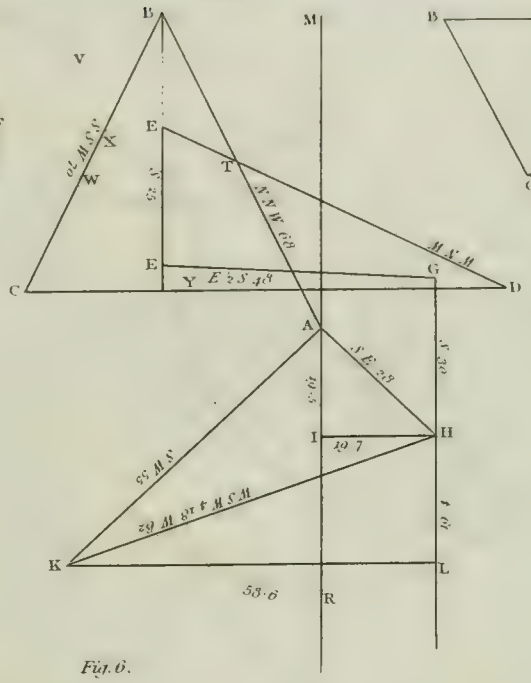


Fig. 2.



CURRENT SAILING

Fig. 3.

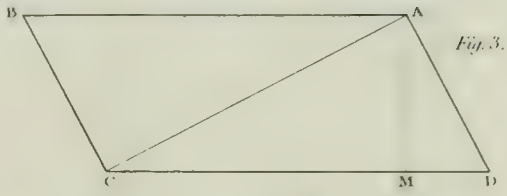
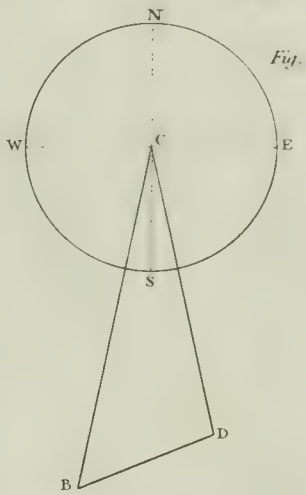


Fig. 4.



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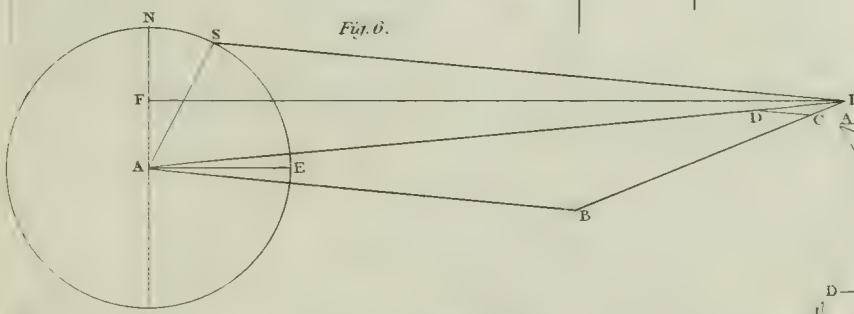

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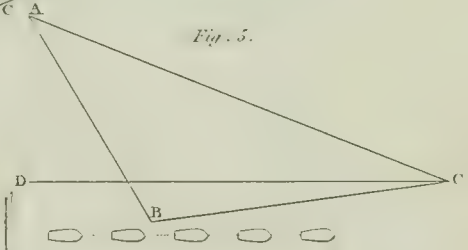


NAVAL TACTICS

CONVOY

Fig. 2.

Fig. 1.

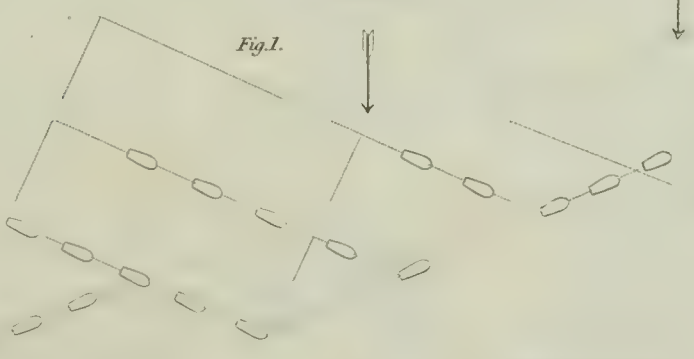


Fig. 3

TRIGONOMETRY

PLATE III.

Fig. 1

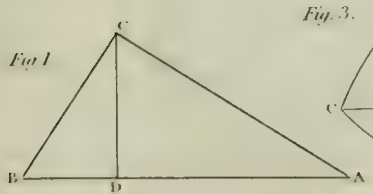
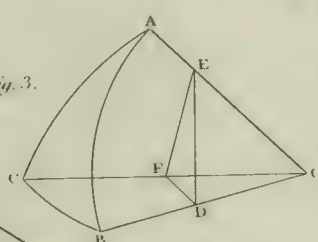


Fig. 3.



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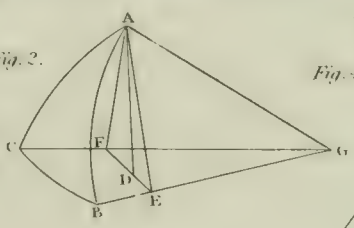

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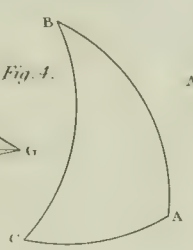
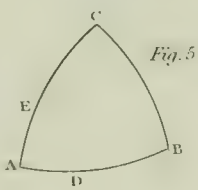


Fig. 5



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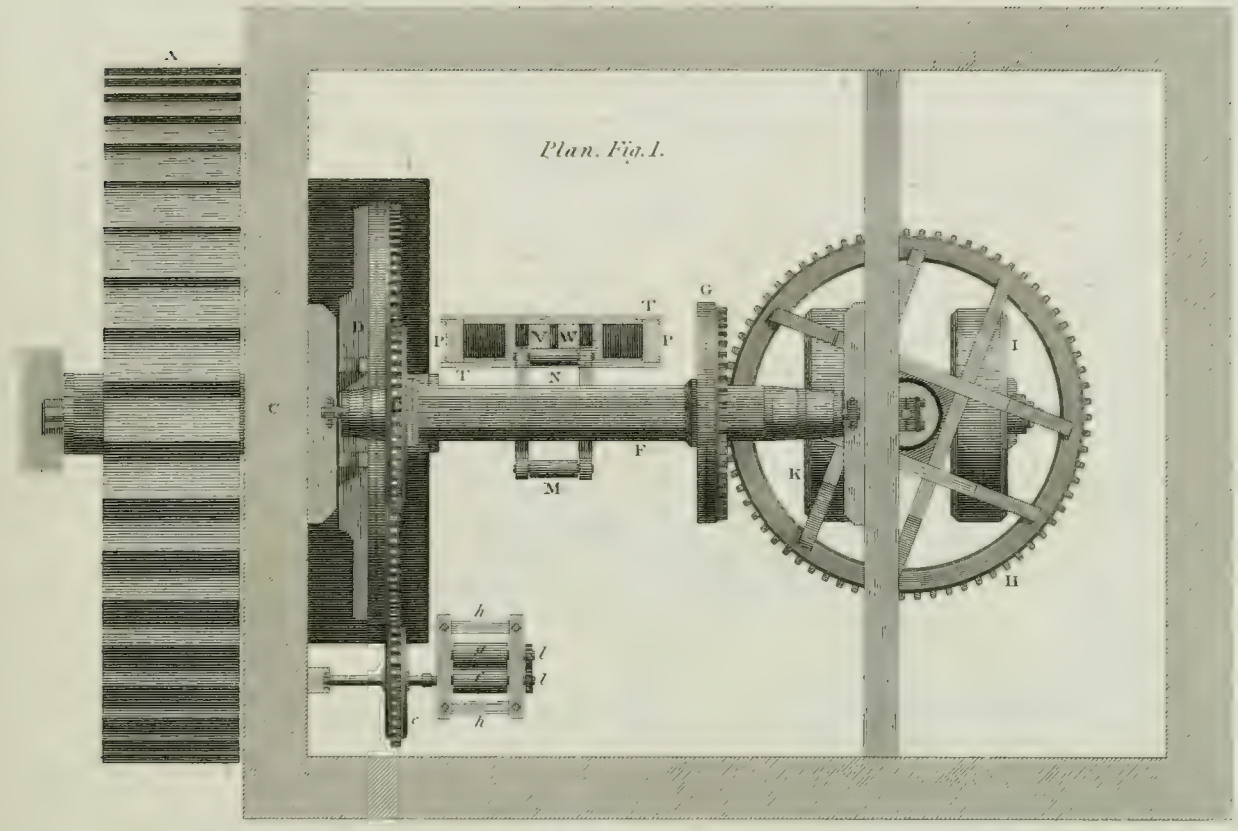

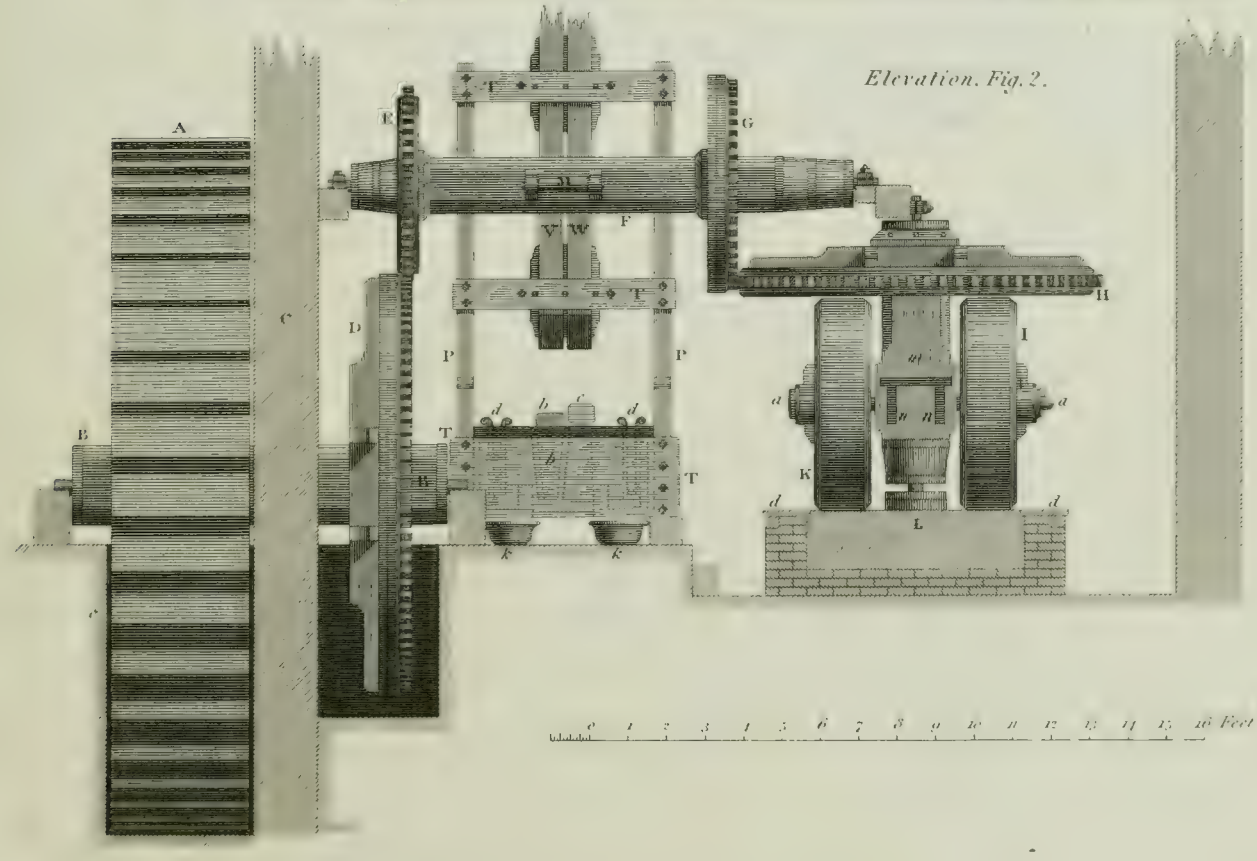

y J. Farey.

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ABBERATION.

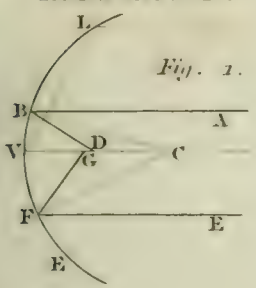


Fig. 1.

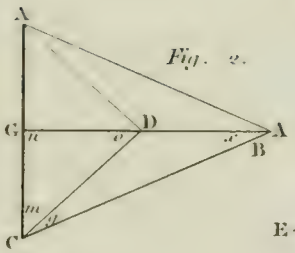


Fig. 2.

ANGLE.

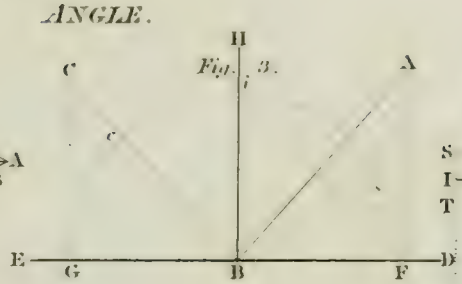


Fig. 3.

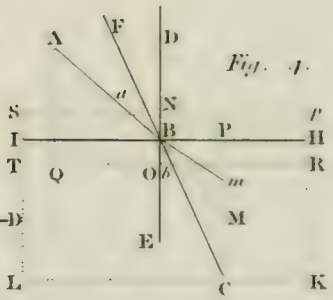
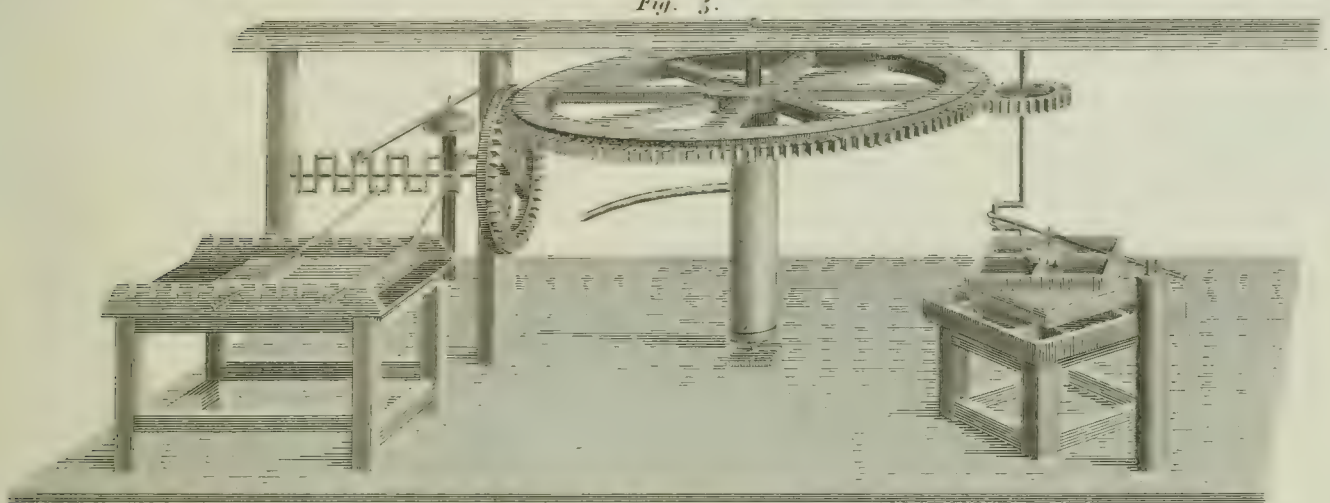


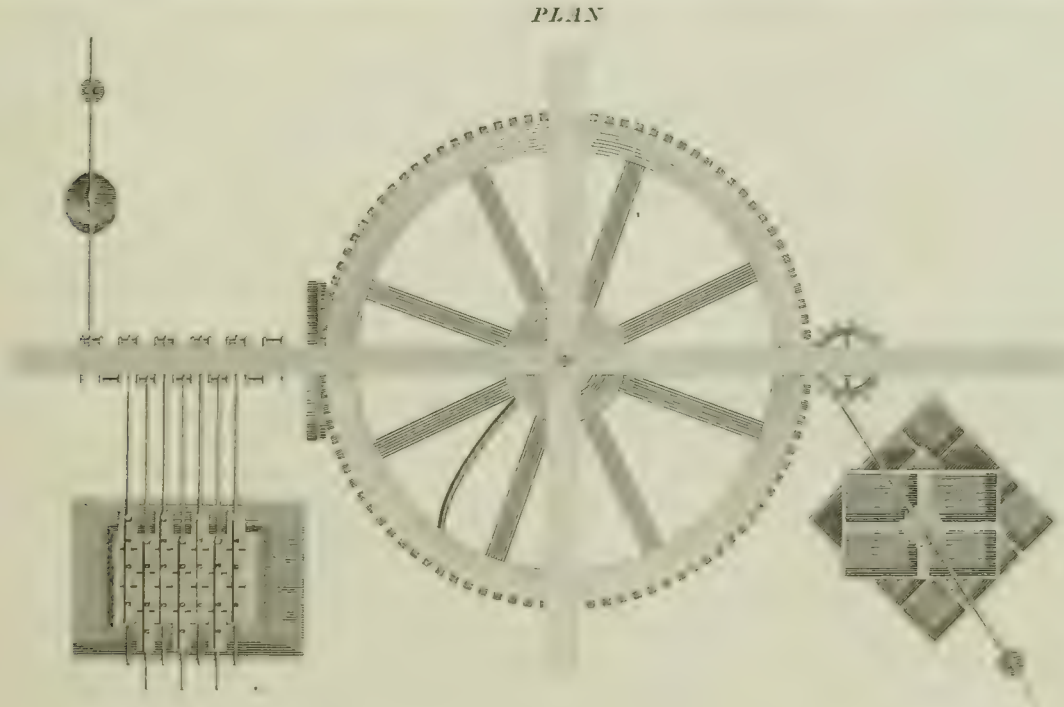
Fig. 4.

BURROUGHS'S MACHINE, from a MODEL of the SOCIETY of ARTS, &c.

Fig. 5.



PLAN



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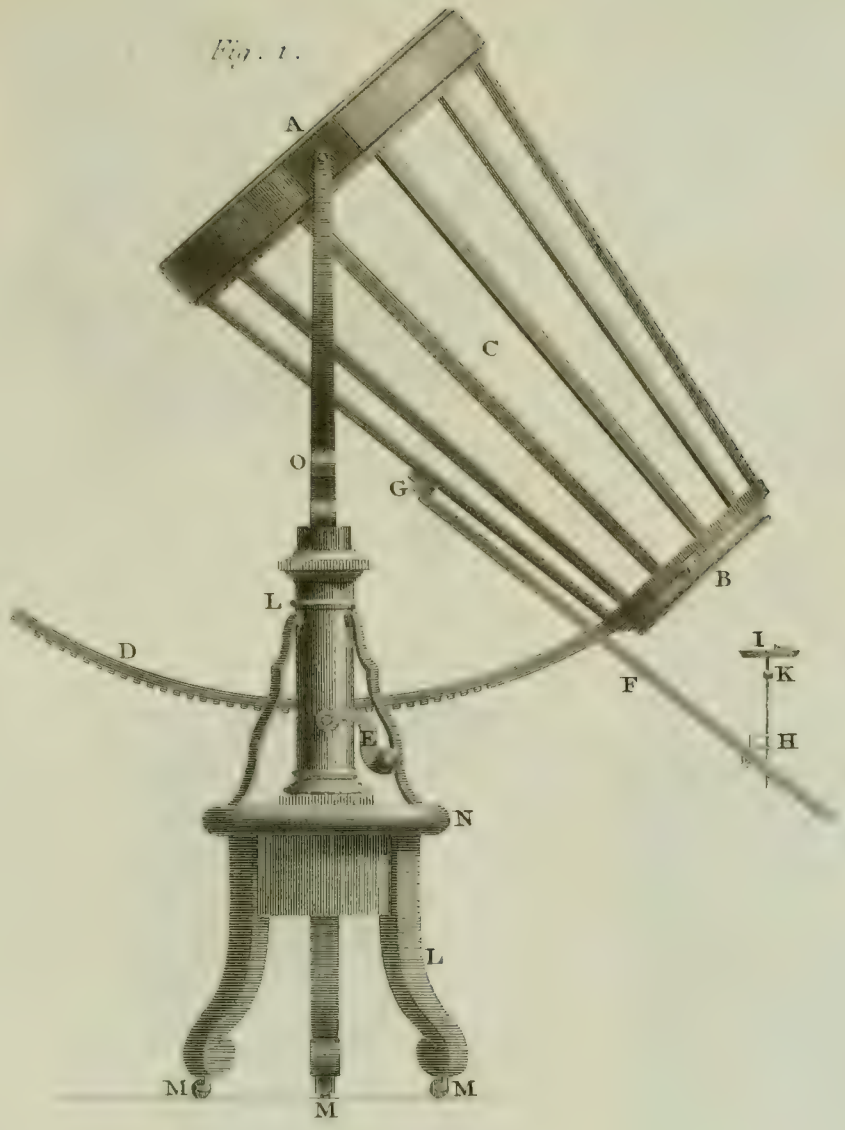
OPTICS.

PARKER'S BURNING LENS.

Fig. 1.



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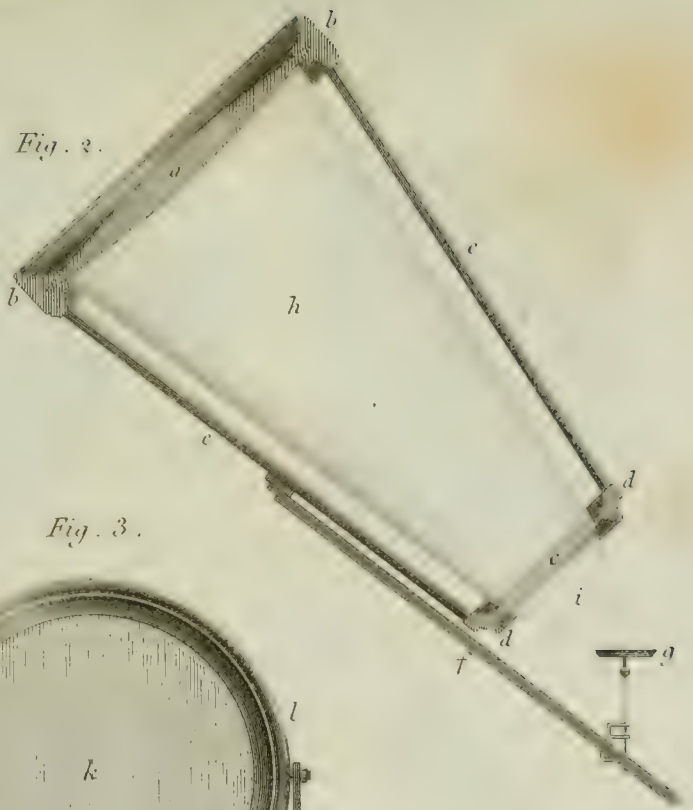
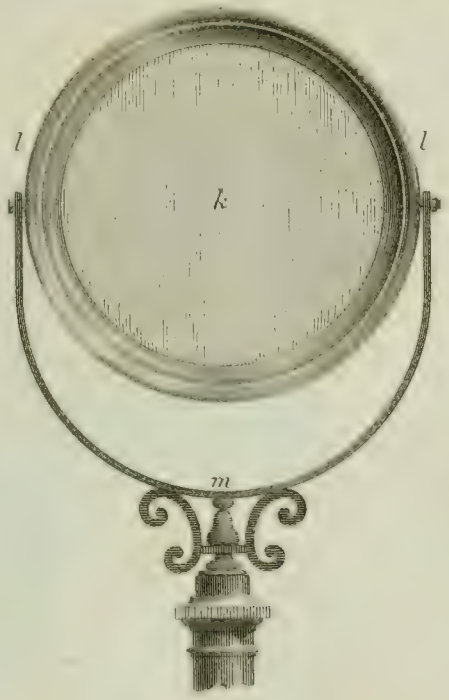


Fig. 3.



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OPTICS.

CAMERA OBSCURA.

Fig. 1.

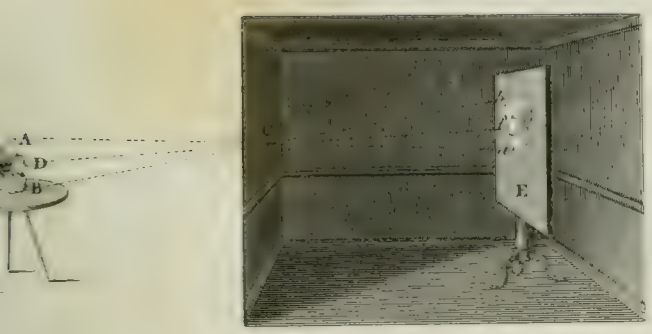


Fig. 2.

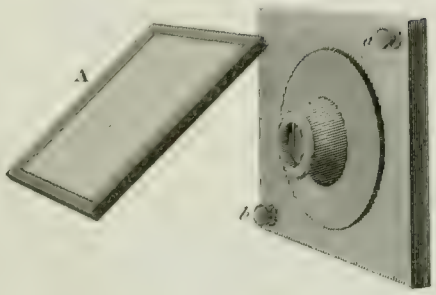


Fig. 3.

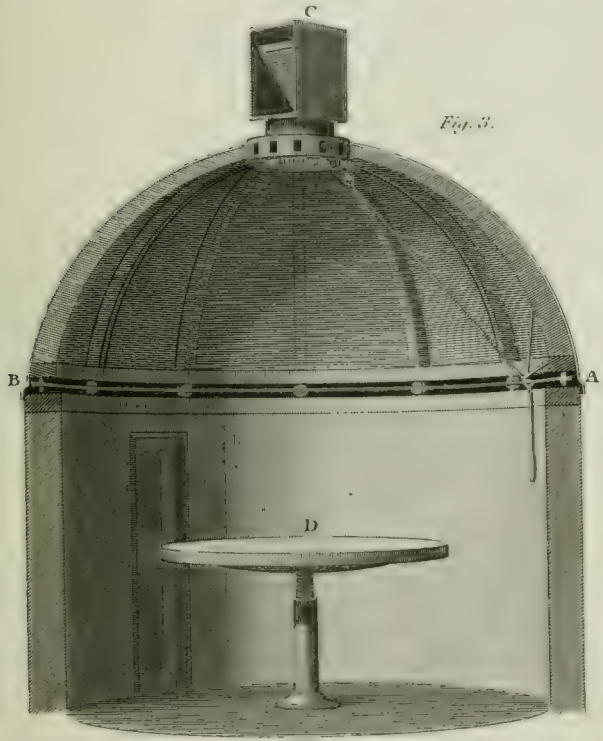


Fig. 4.

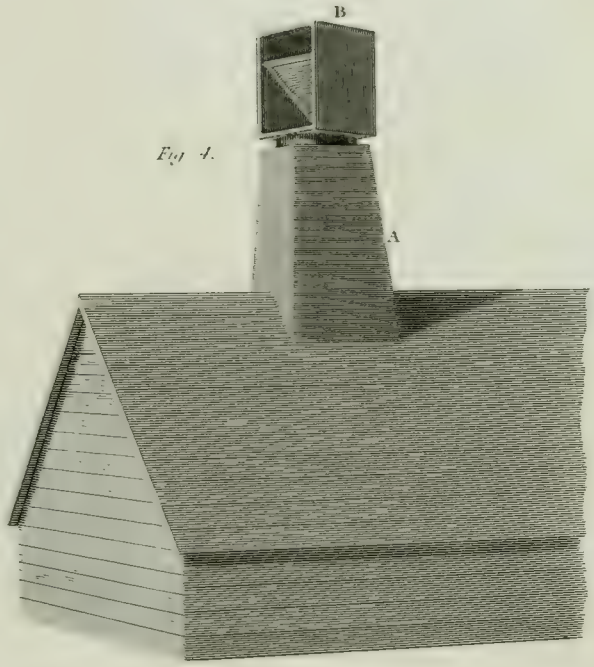
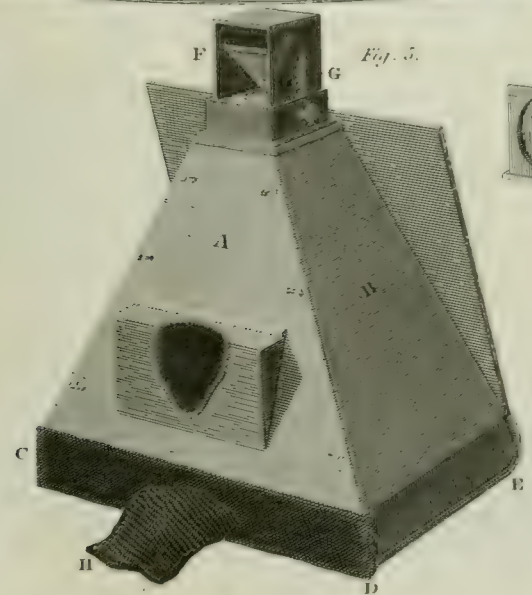


Fig. 5.



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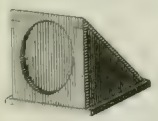

Fig. 7.

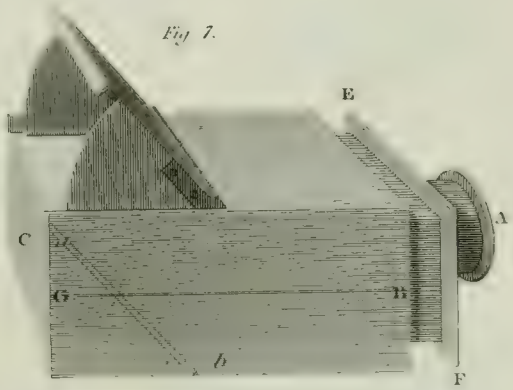

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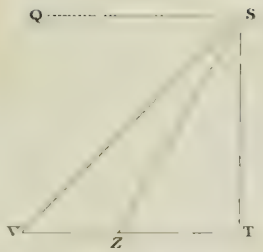
Fig. 10.

Fig. 11.



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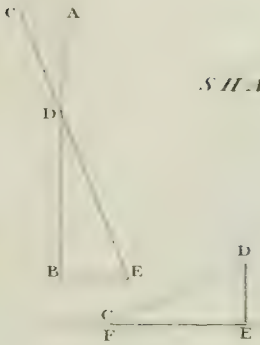


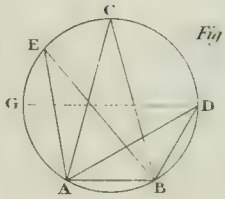
SHADOW

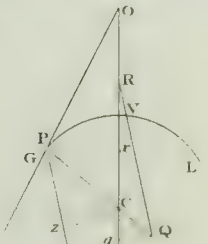
Fig. 12.

VISIBLE

Fig. 14

Fig. 15.



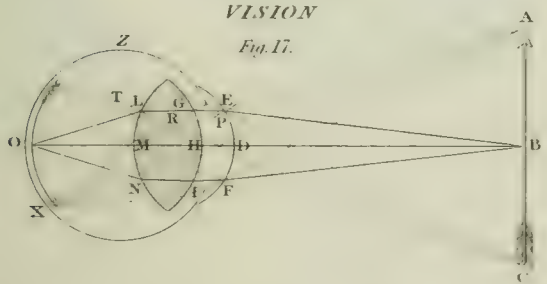


FOCUS

Fig. 8.

VISION

Fig. 17.



DIOPTRICS

Fig. 2.

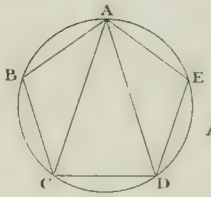
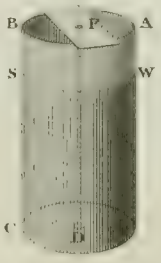
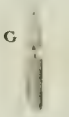


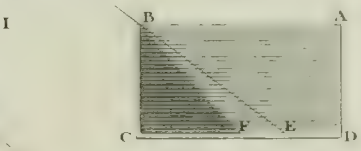
Fig. 16.





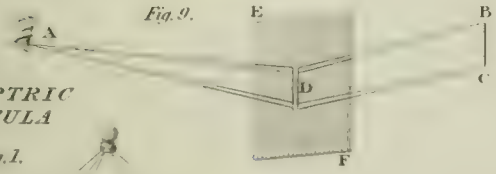
DIOPTRICS

Fig. 3.



LOOKING GLASS

Fig. 9.



CATOPTRIC CISTULA

Fig. 1.

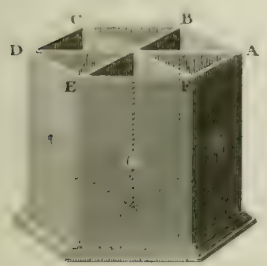


Fig. 7.

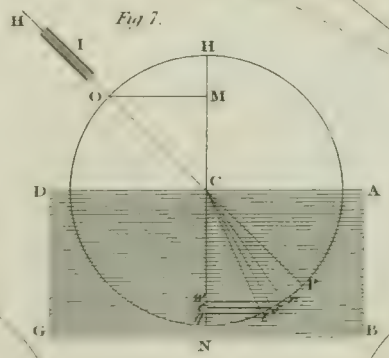
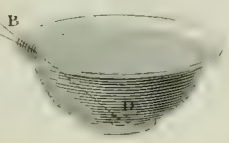


Fig. 4.



CATOPTRICS and DIOPTRICS

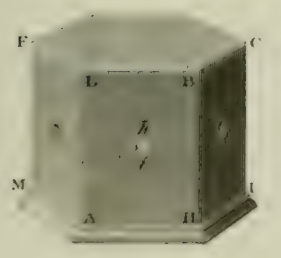
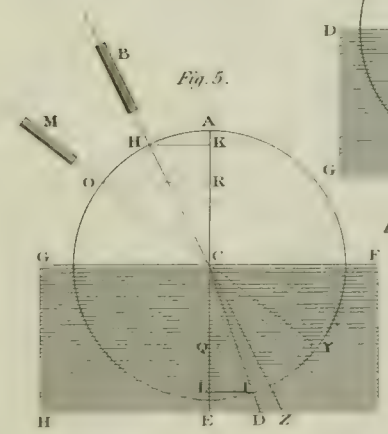


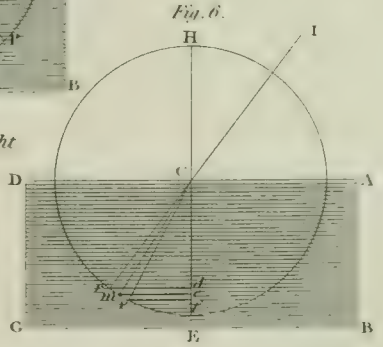
Fig. 2.

Fig. 5.



DISPERSION of Light

Fig. 6.



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OPTICS.

GRINDING.

PLATE V.

Virtual FOCUS.

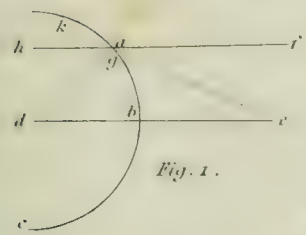


Fig. 1.

Fig. 2.

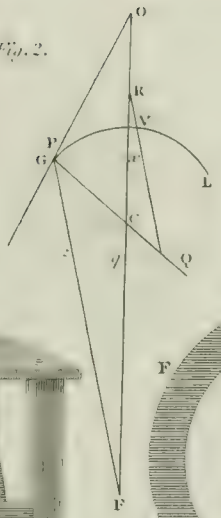


Fig. 7.

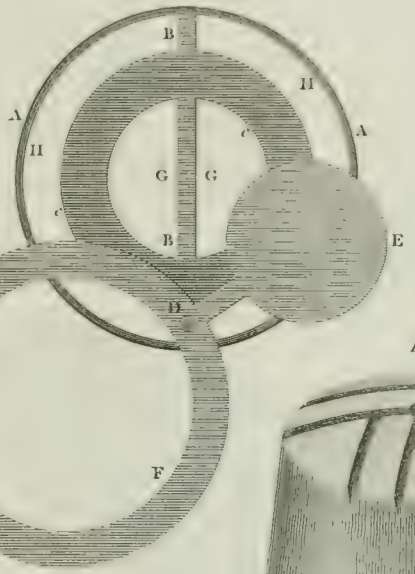


Fig. 4.

Fig. 3.

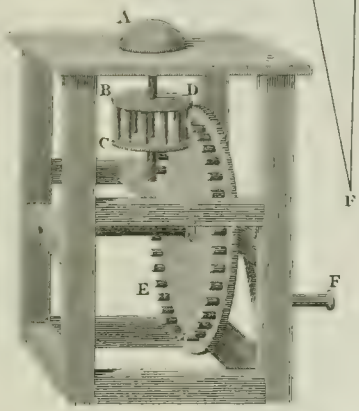
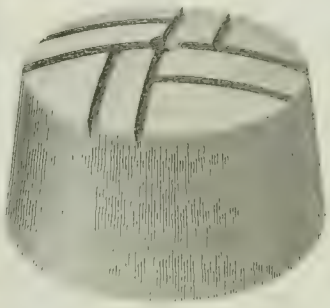


Fig. 5.

Fig. 6.



OPTICS.

LENS.

PLATE VI

Fig. 5.

Fig. 6.

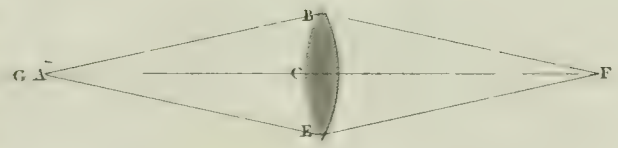
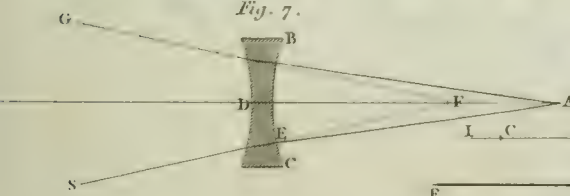


Fig. 7.



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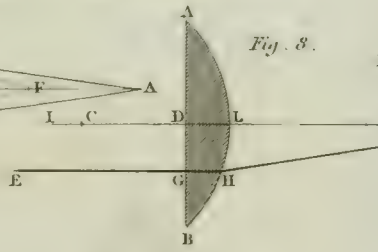

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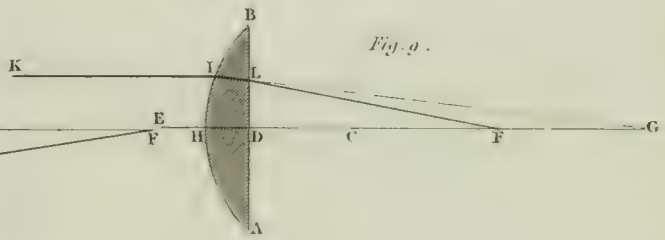

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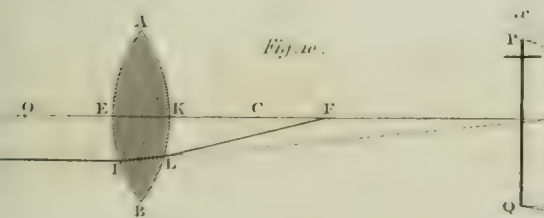

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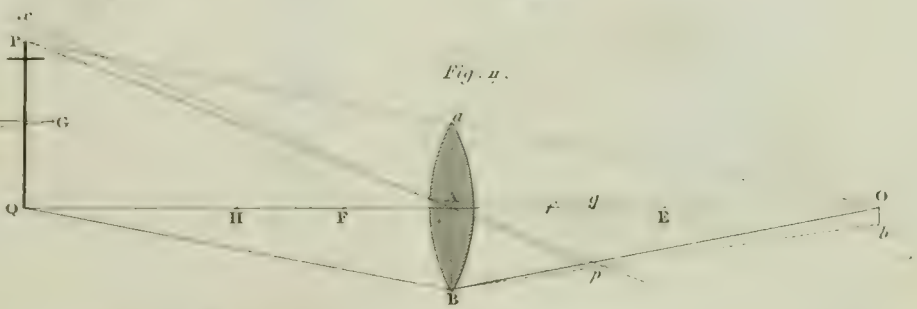

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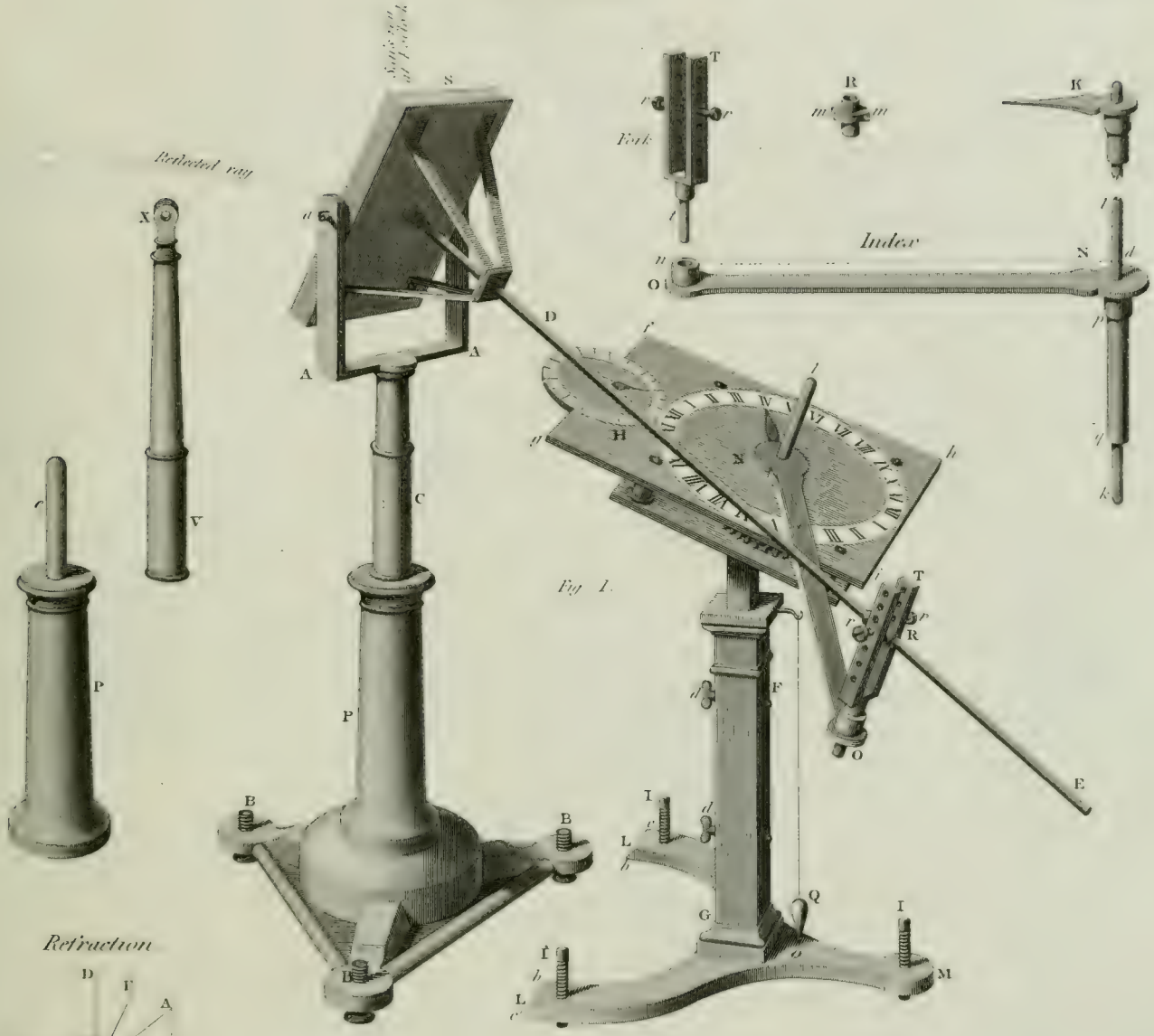

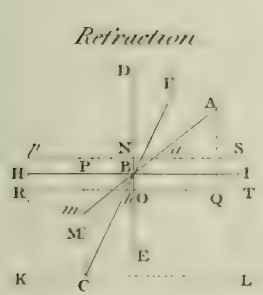

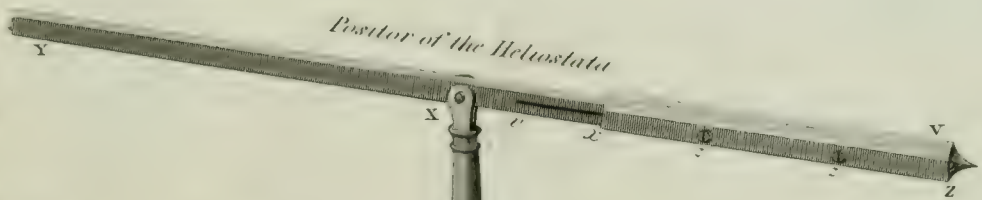

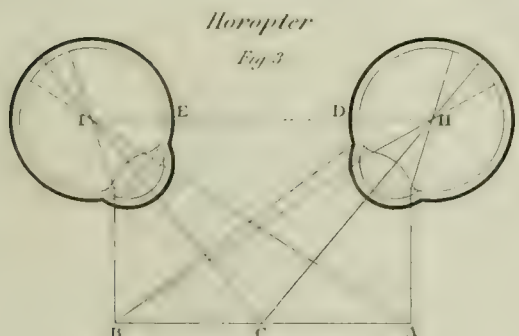

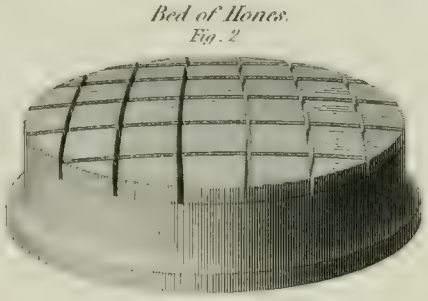

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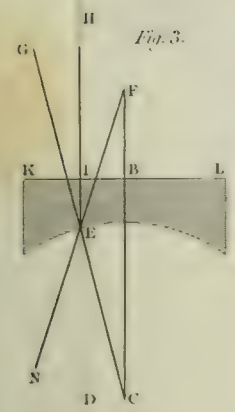

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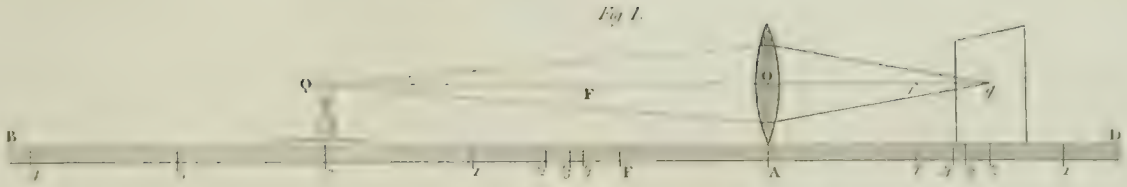

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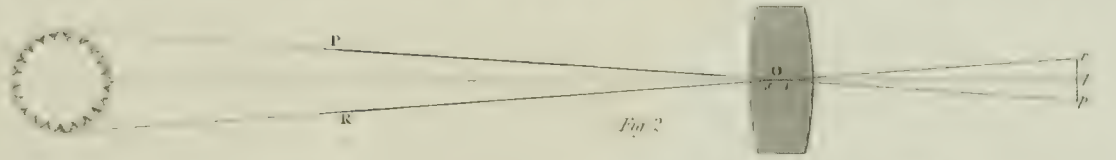

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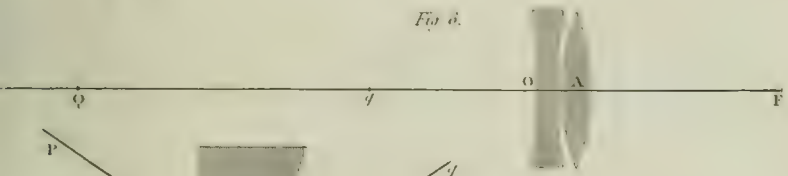

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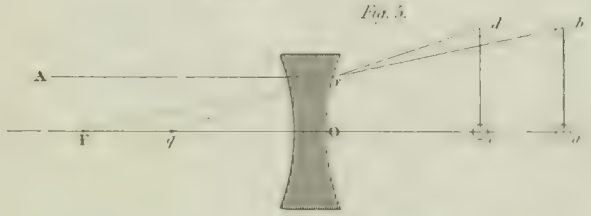

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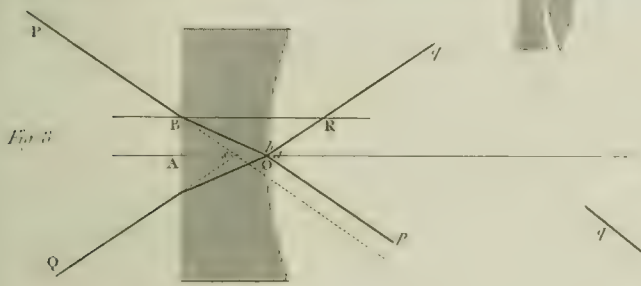

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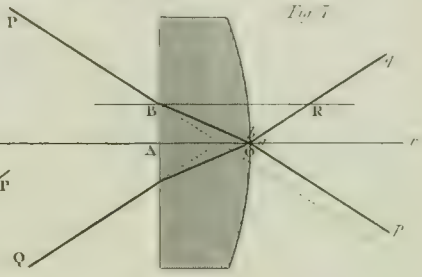

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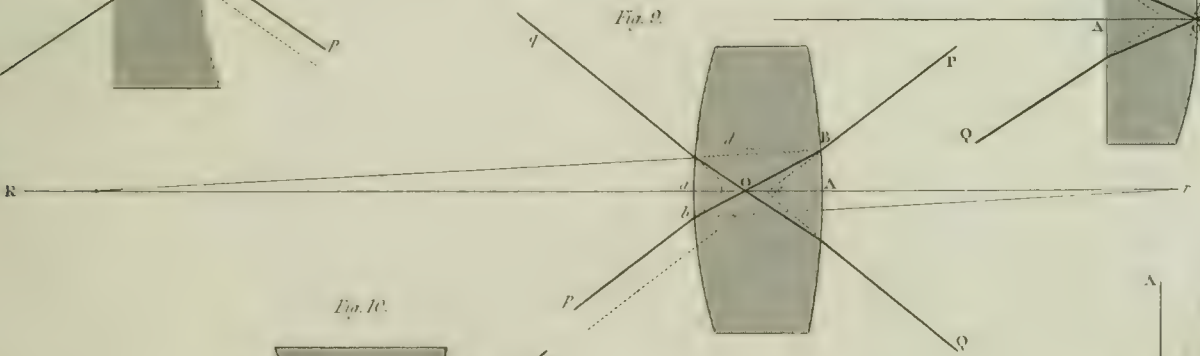

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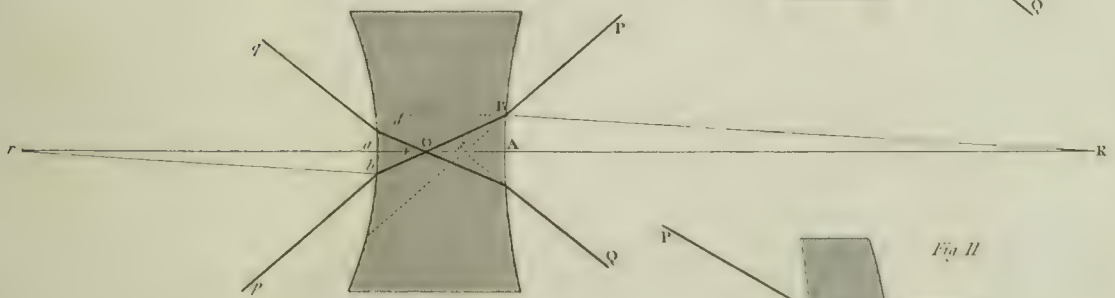

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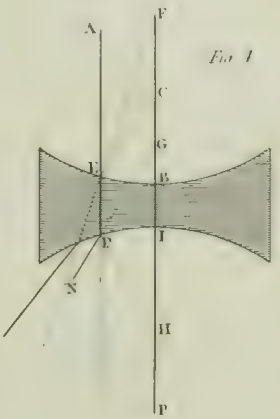

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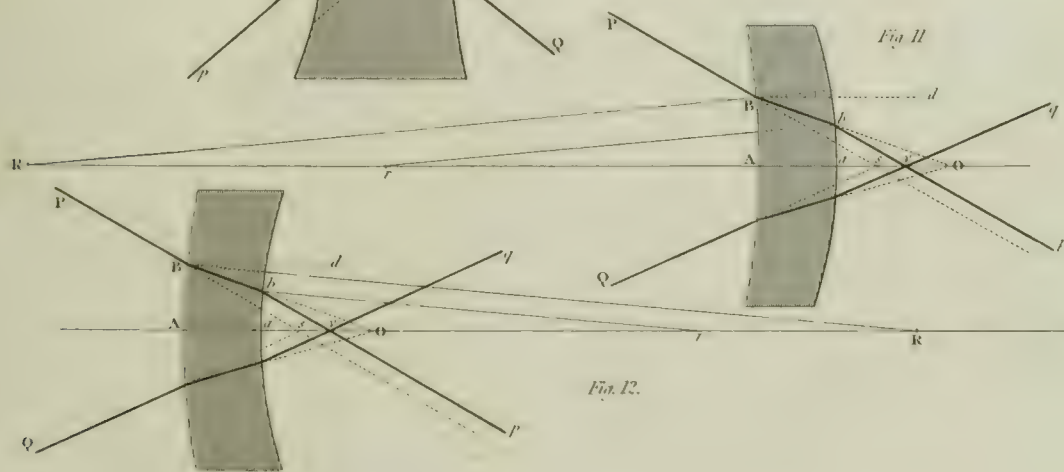

Fig 11

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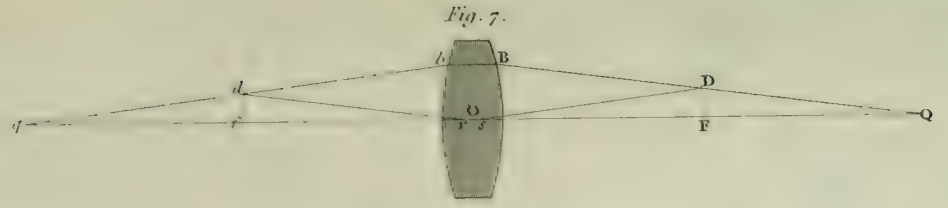

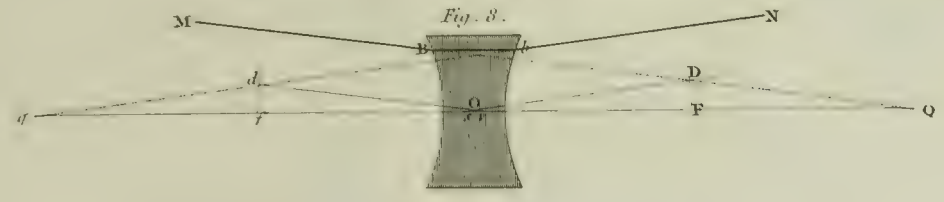

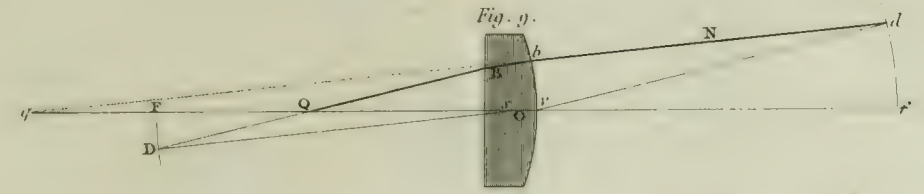

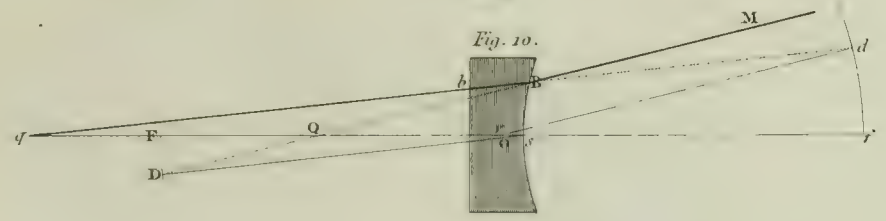

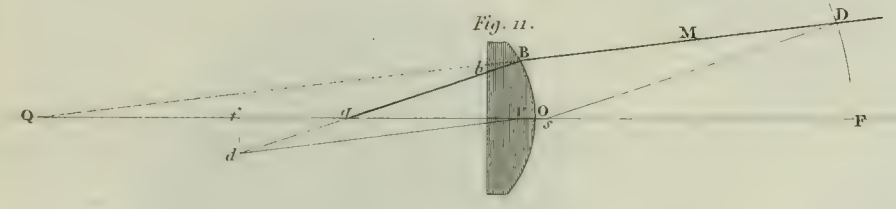

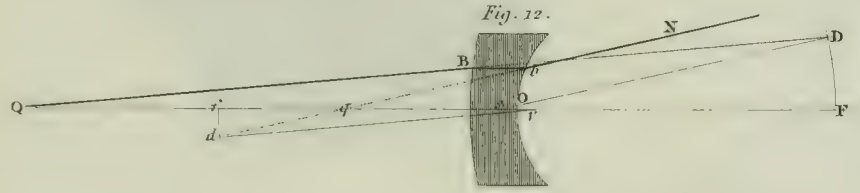

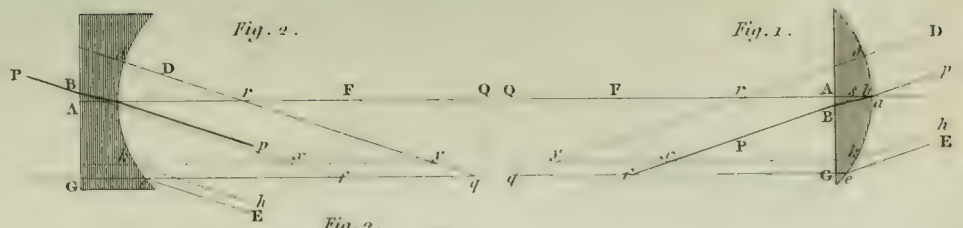

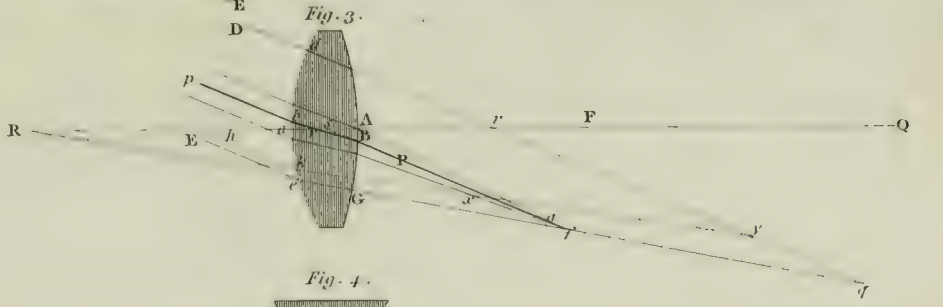

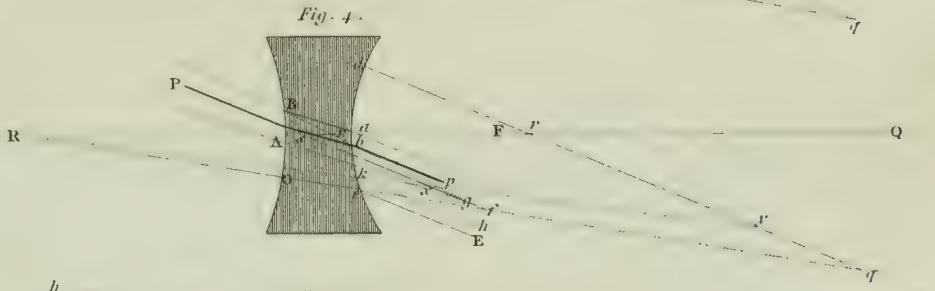

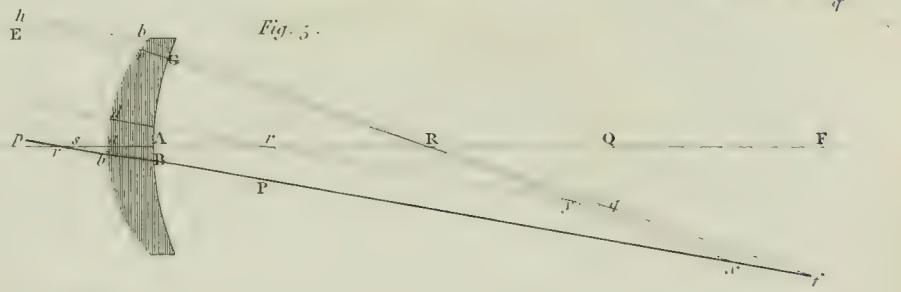

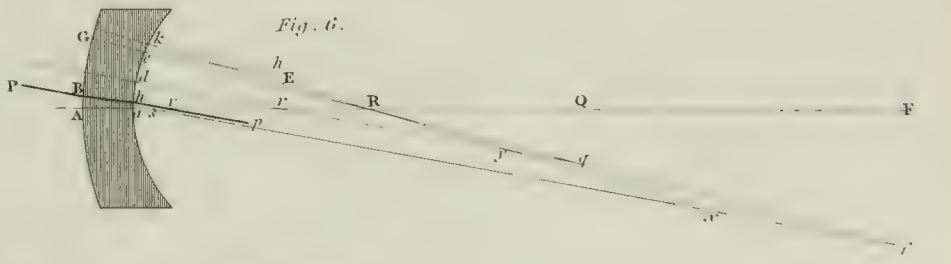

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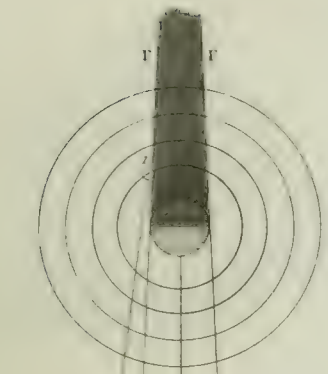

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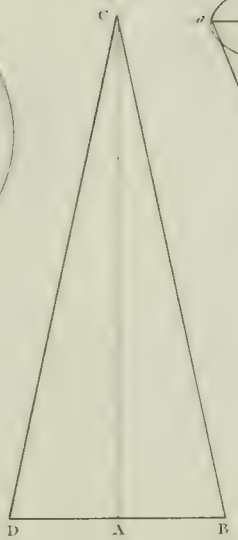

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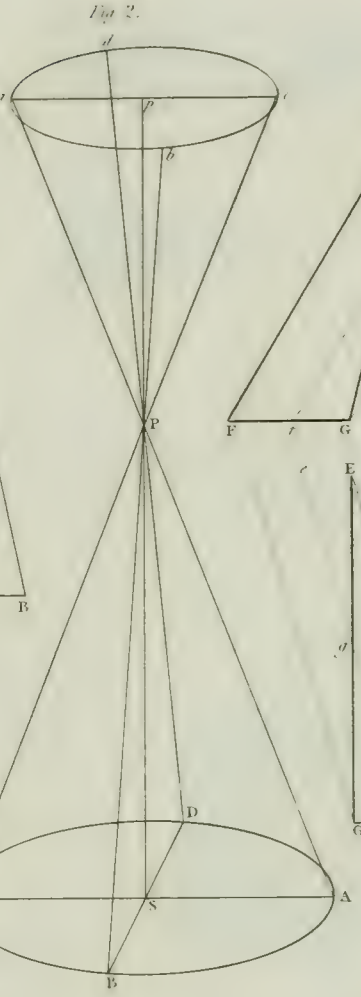

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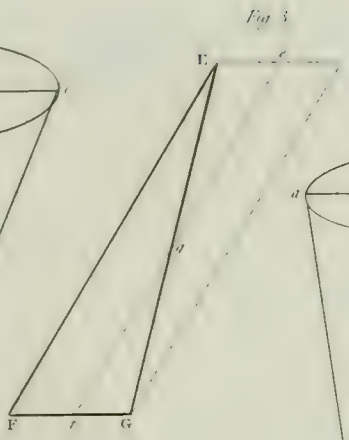

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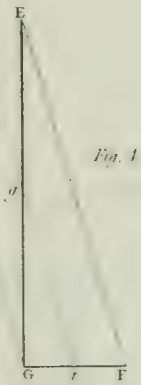

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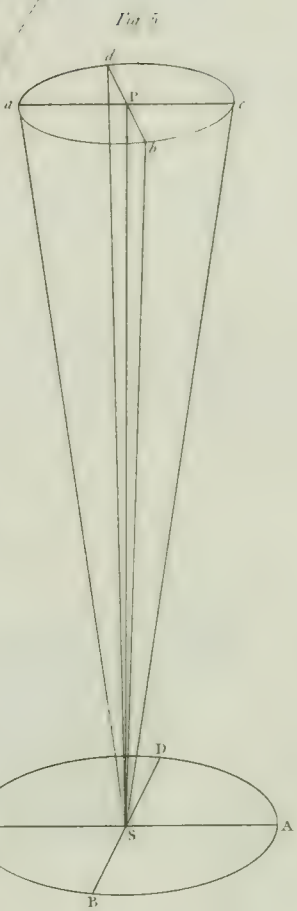

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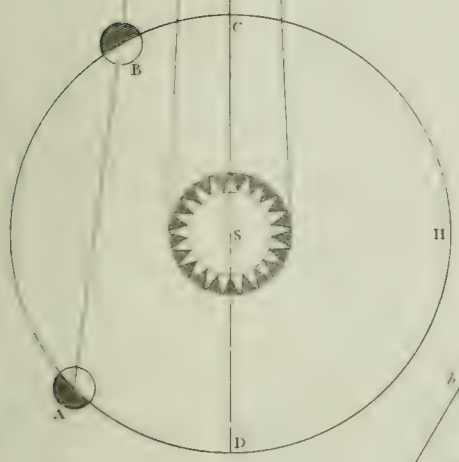

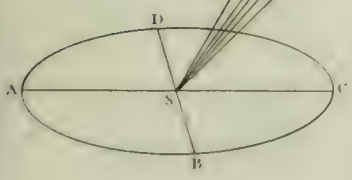

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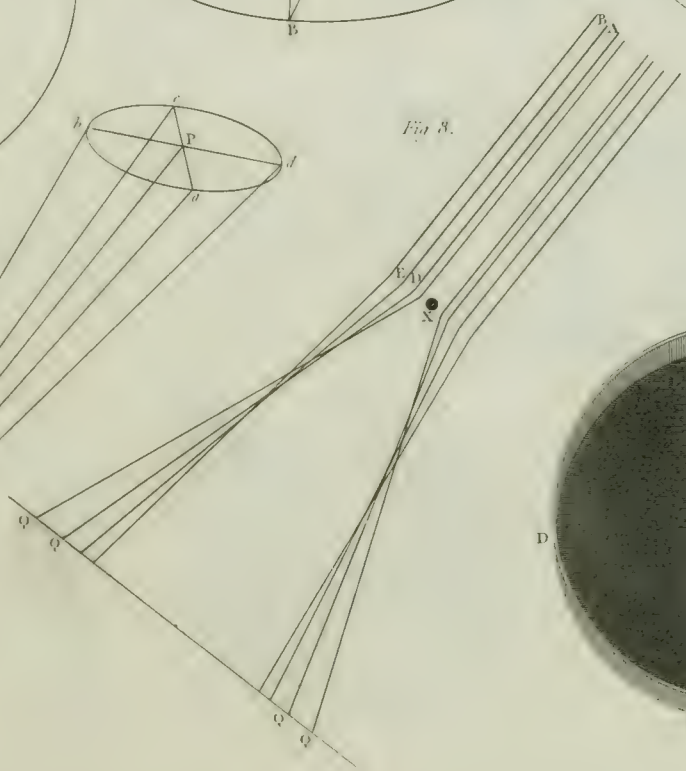

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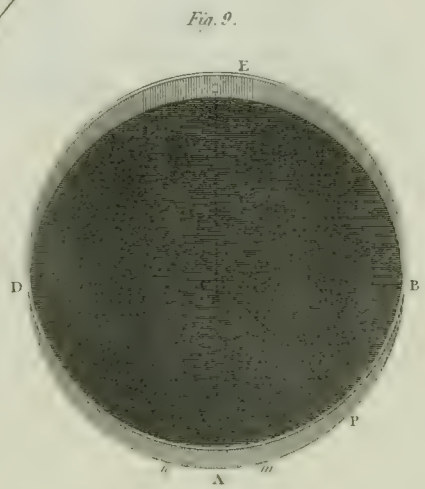

Fig. 9.

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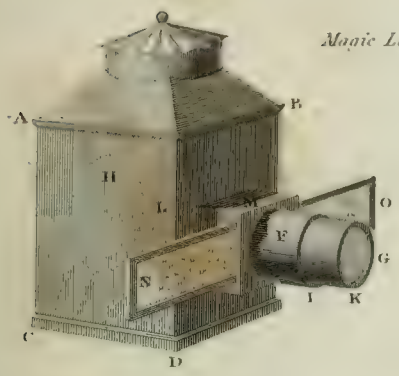
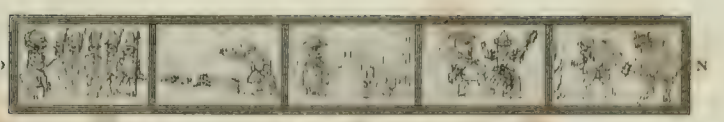
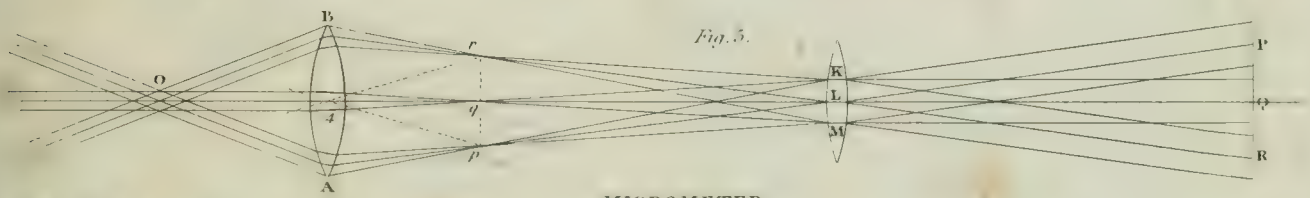
Fig. 1.

Magic Lantern.







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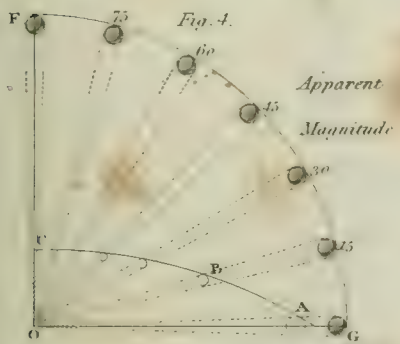

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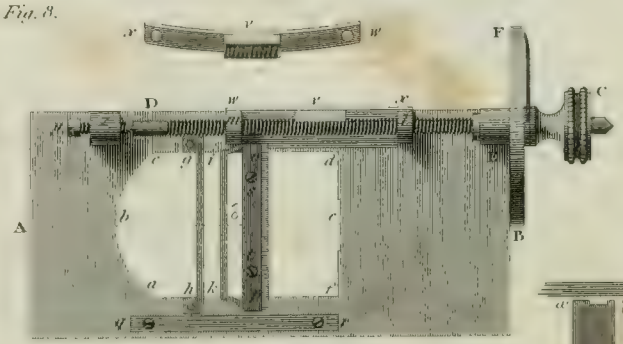

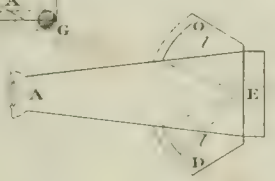

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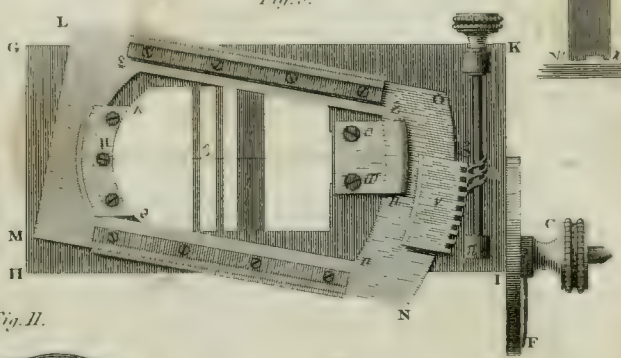

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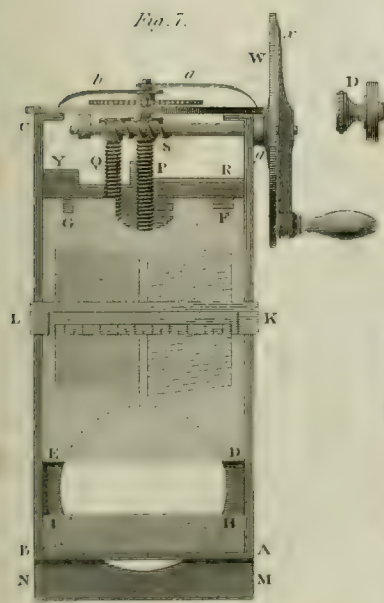

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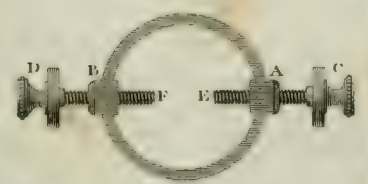

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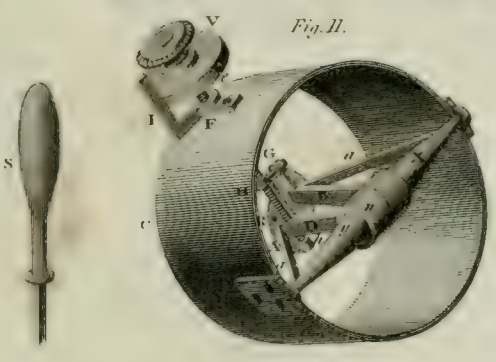

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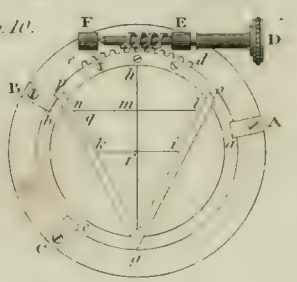

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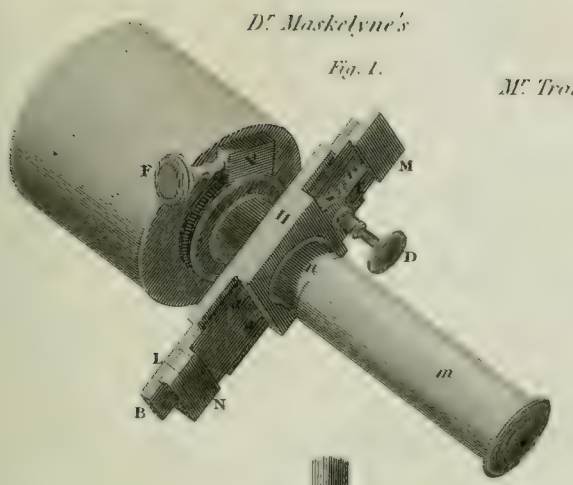
MICROMETER.

Dr Maskelyne's

Fig. 1.



Mr Troughton's

Fig. 2.

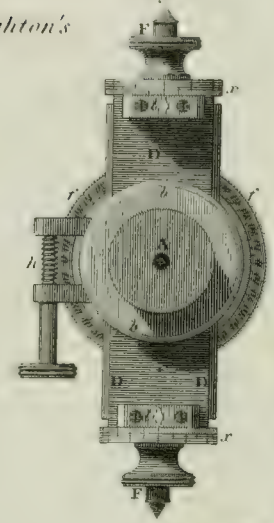


Fig 3

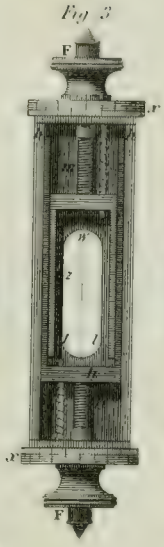
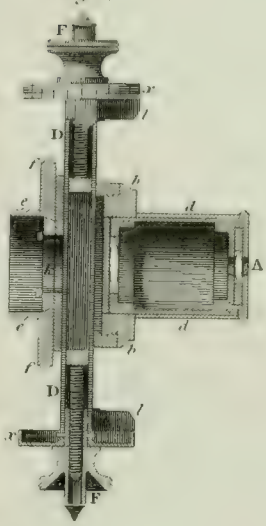


Fig 4



Dr Herschel's Lamp Micrometer.

Fig. 5.

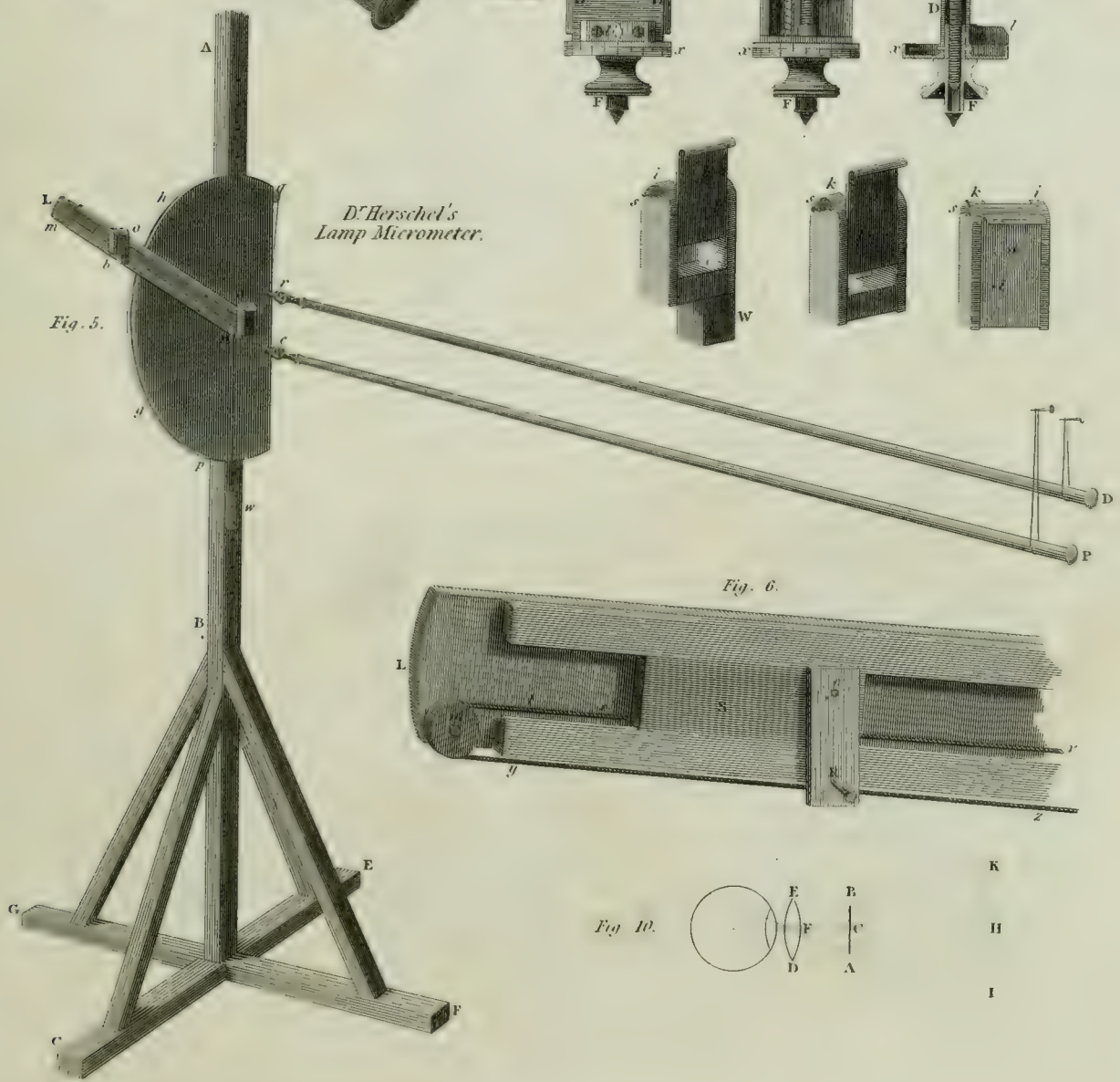


Fig. 6.

Fig 10.

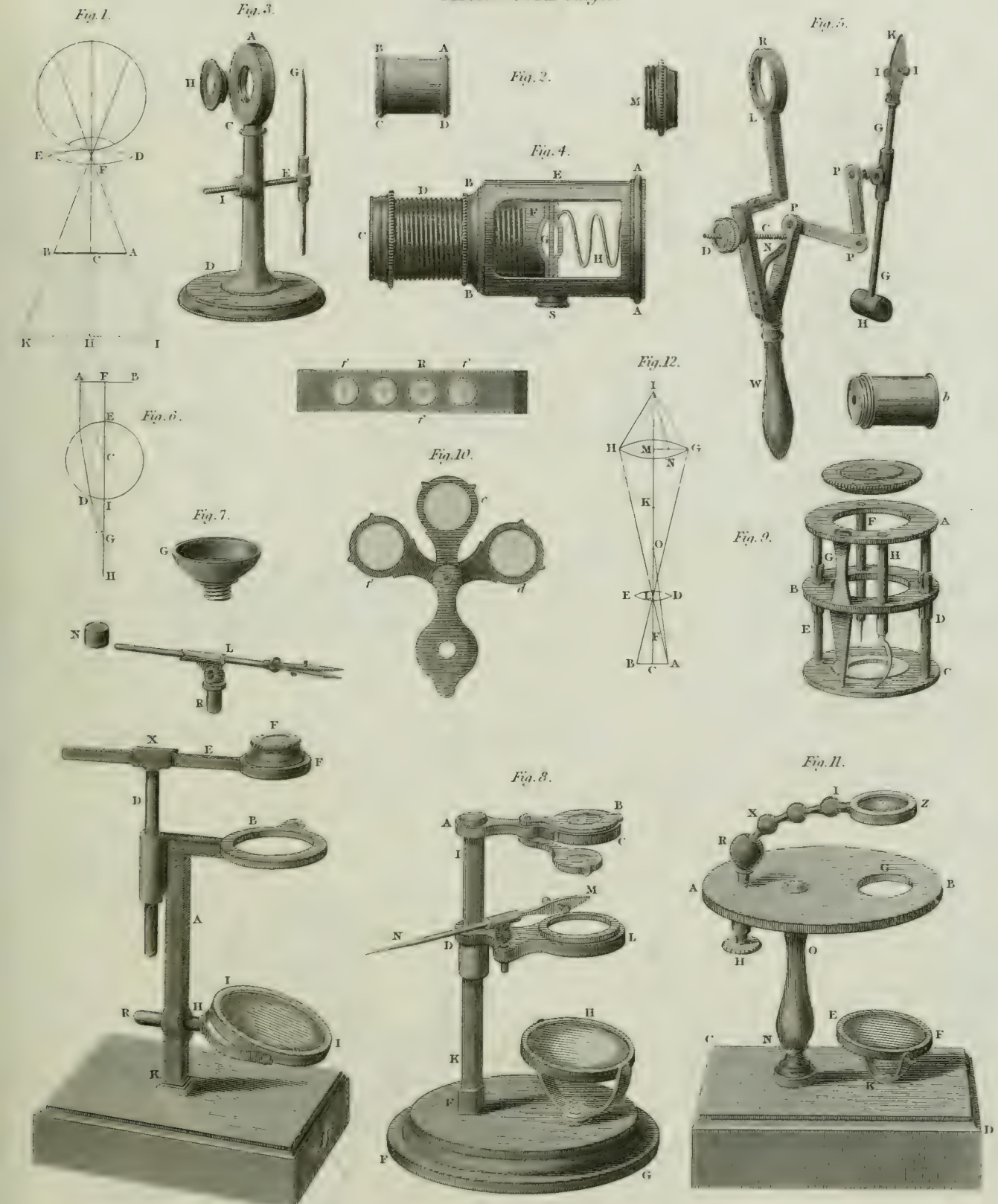
K

H

I

J. Farey del. Published as the Act directs, 1815, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry sc.

MICROSCOPE Single.



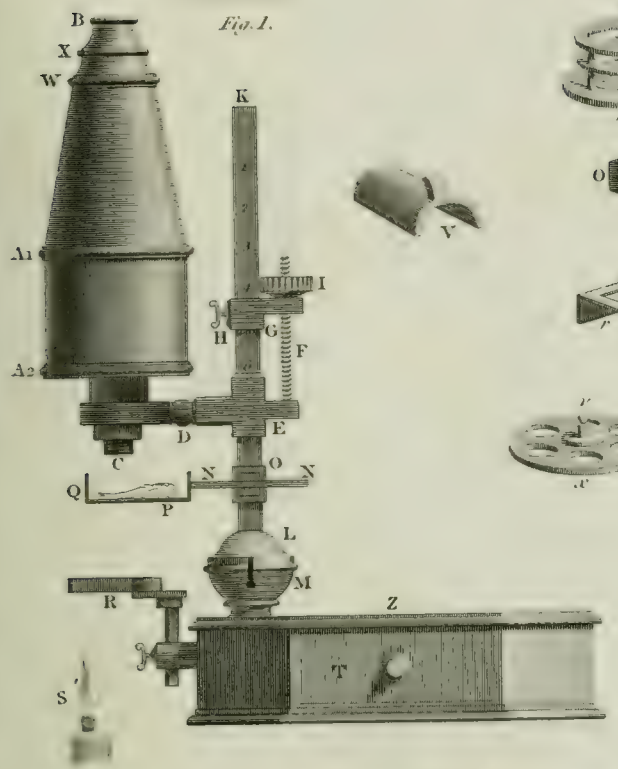
Jun. del. Published as the Act directs, 1816, by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row, London. Lowry sculp.

OPTICS.

MICROSCOPES.

Marshall's.

Fig. 1.



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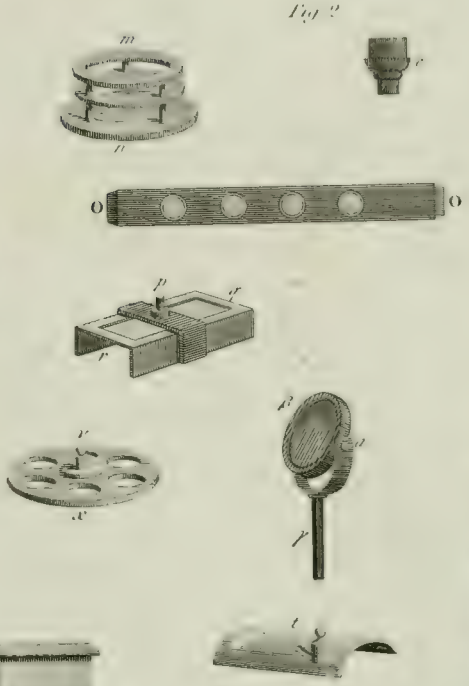


Gullpepper's.

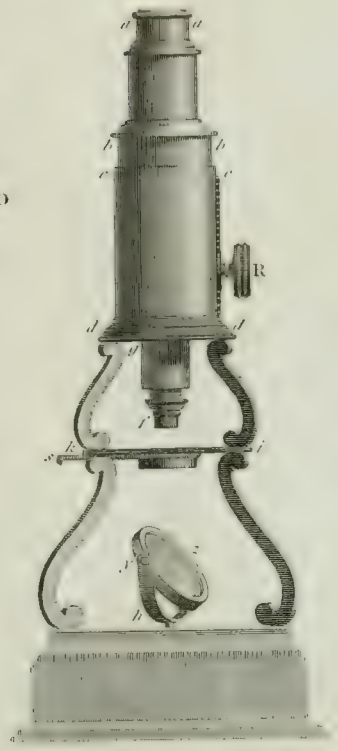


Fig. 4

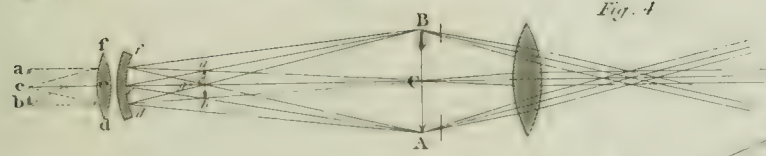
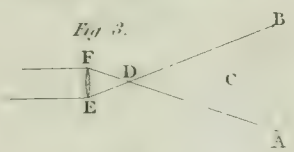


Fig. 3.



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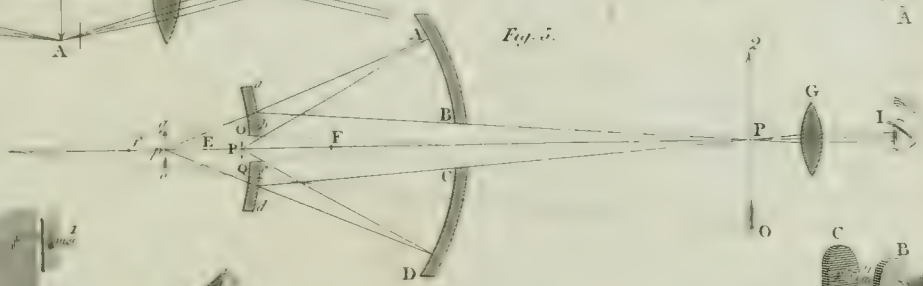
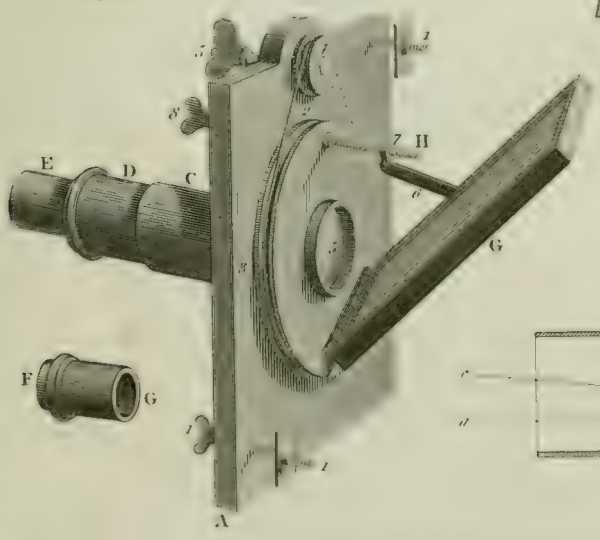


Solar Microscope.

Fig. 6.



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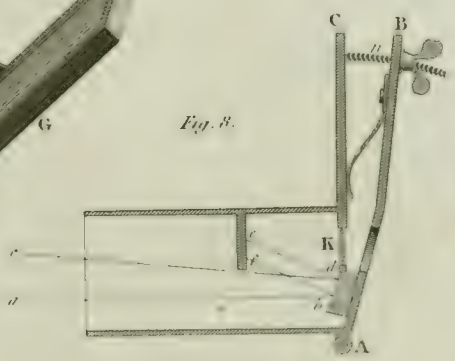
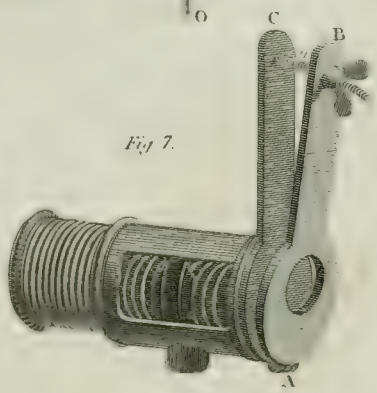


Fig. 7.



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OPTICS.

Compound MICROSCOPE.

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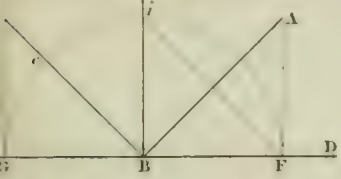
OPTICS.

MIRROR.

Fig. 1.

INCIDENCE. INCLINATION



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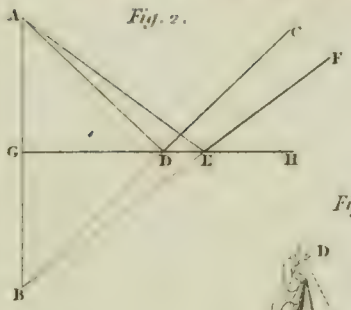
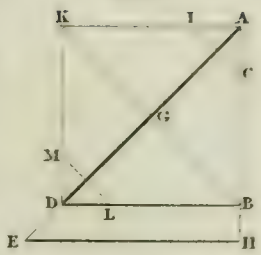


Fig. 3.

Fig. 4.



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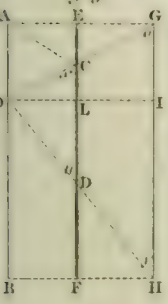

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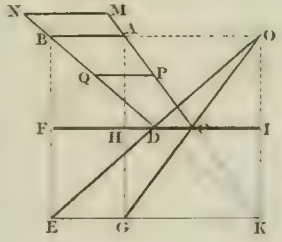

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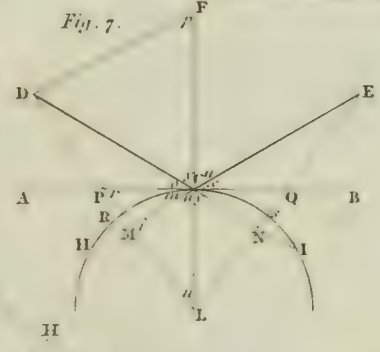

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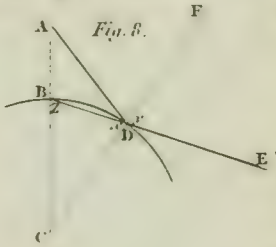
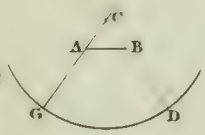


Fig. 16



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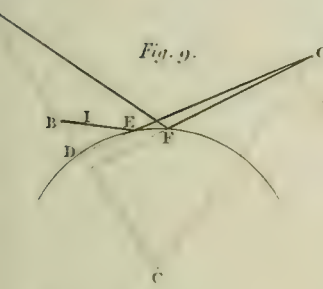

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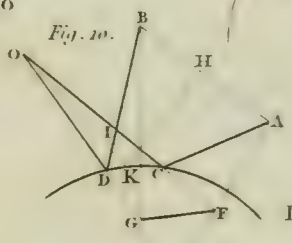

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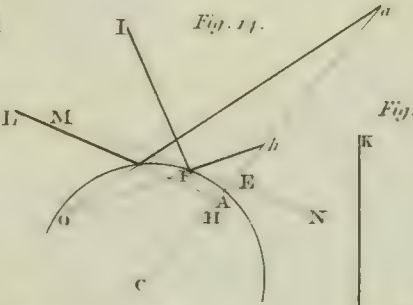

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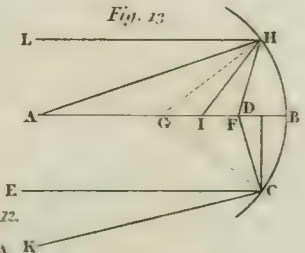

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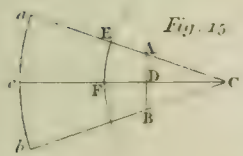

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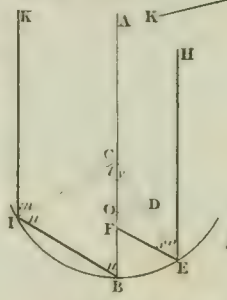
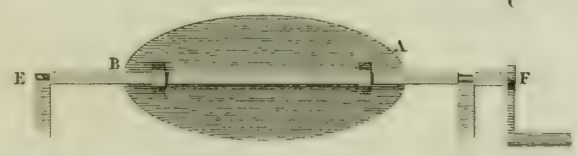
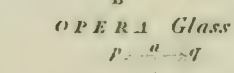


Fig. 17



OPERA Glass



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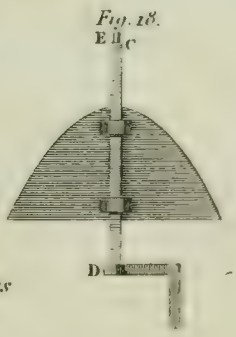
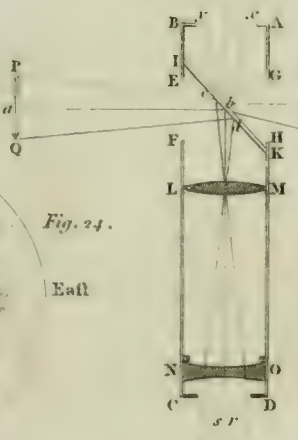
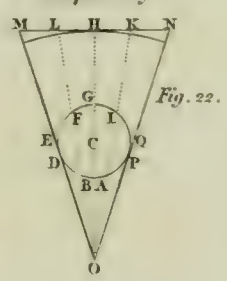


Fig. 21.



OPTICAL Inequality.

Fig. 22.



Centering OBJECT Glass.

Fig. 19.

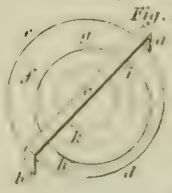


Fig. 20.

PARHELION North

Horizon

A circle parallel to the Horizon.

Pole of the Ecliptic

Zenith

West

East

South

T H S

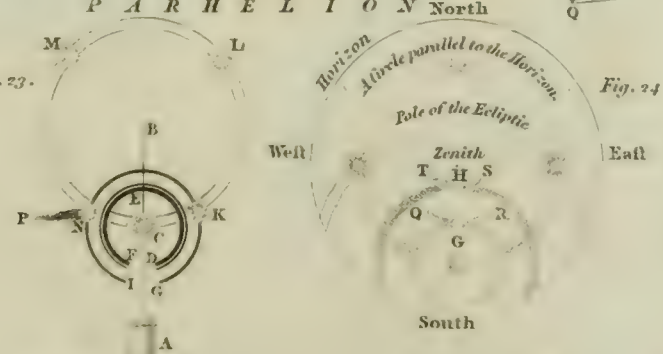
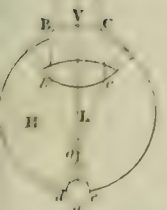


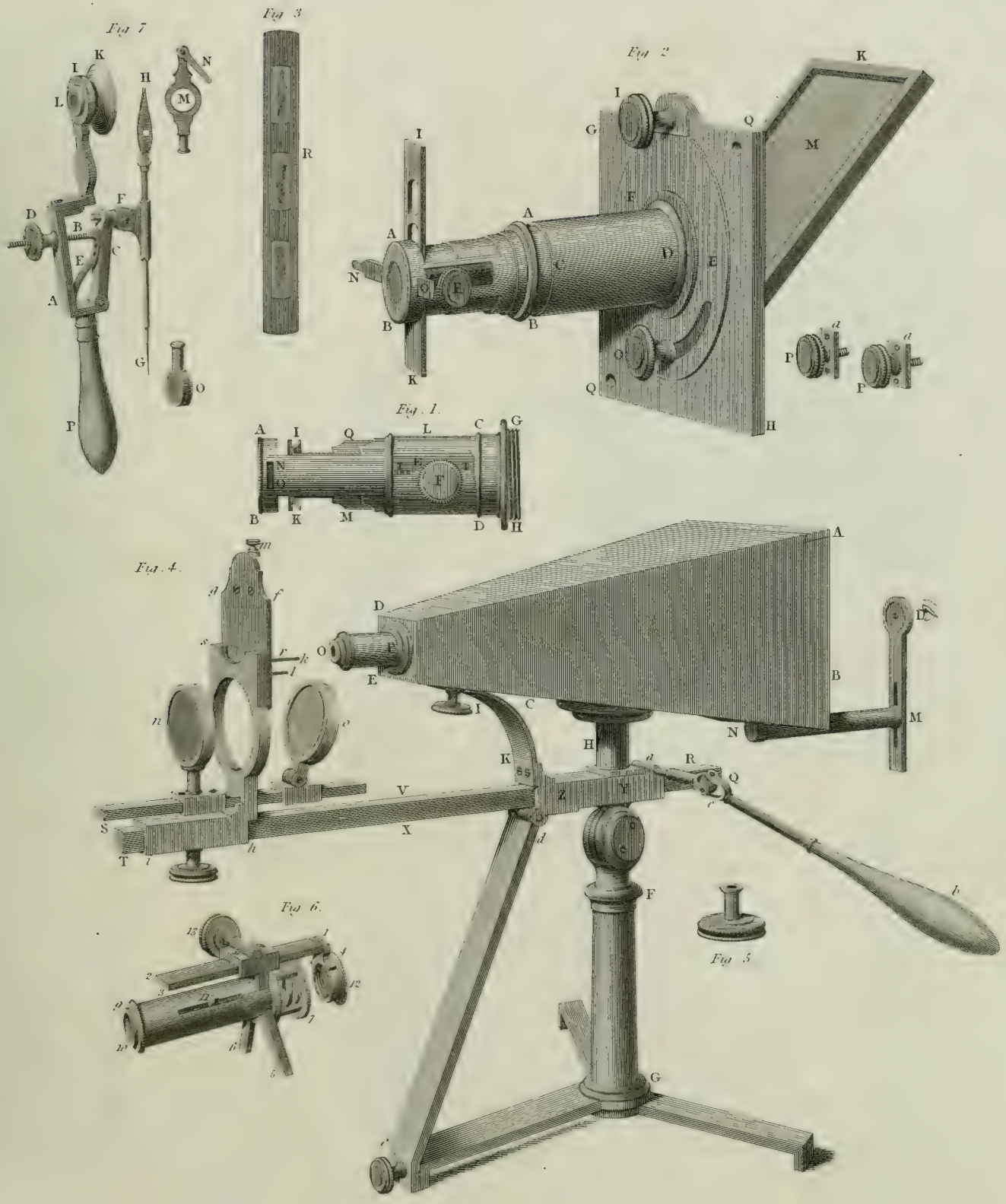
Fig. 23.

Fig. 24.



Published as the Act directs, 1st Jan. 1812, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by W. Lowry.



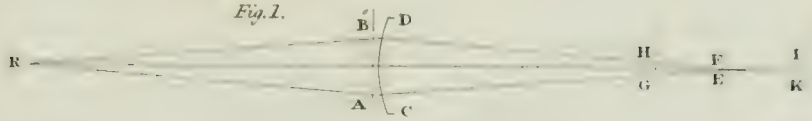
J Farey delin. Published as the Act directs, 1819, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry Sc.

OPTICS.

OPTOMETER.

PLATE XVII.

Fig. 1.



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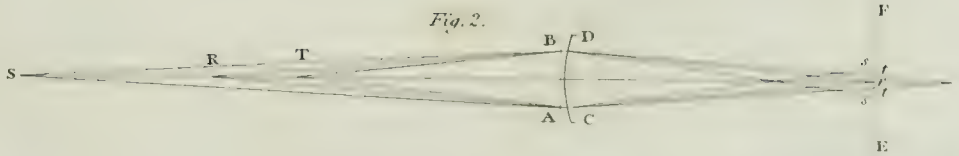
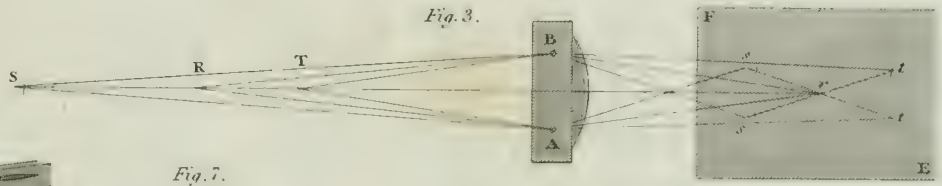


Fig. 3.



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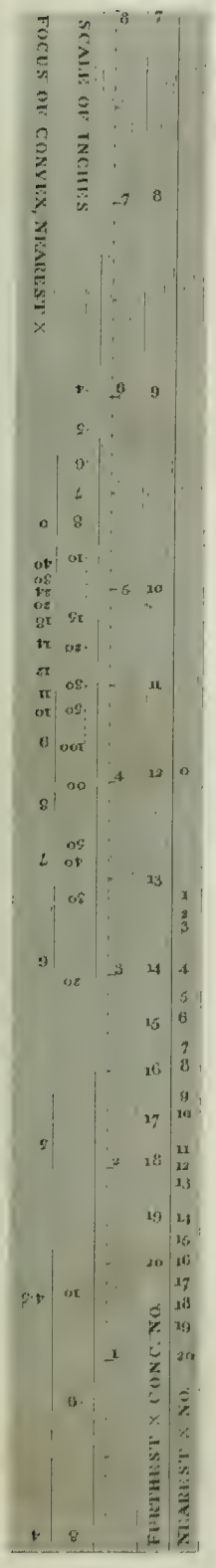
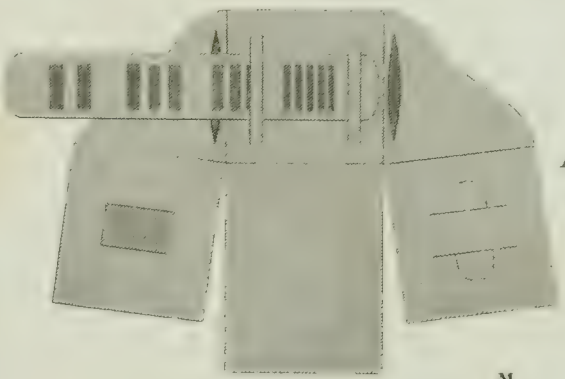


Fig. 6.

Fig. 7.

Fig. 4.



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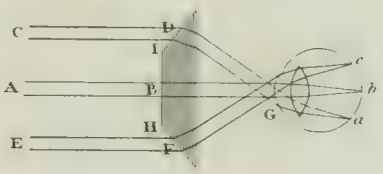
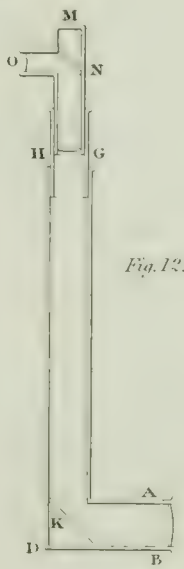


Fig. 12.



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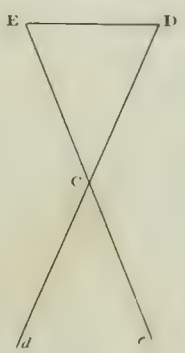
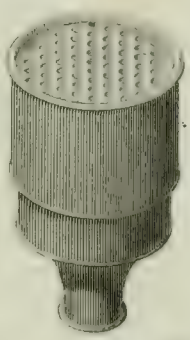


Fig. 13.



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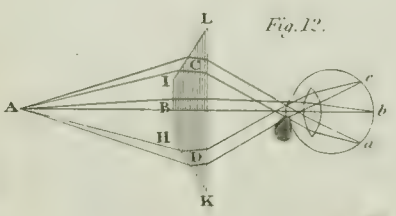


Fig. 10.

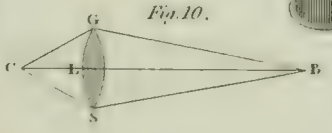
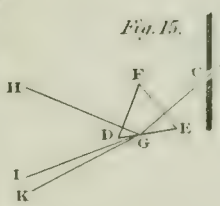


Fig. 15.



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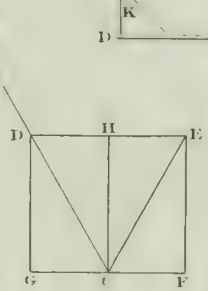

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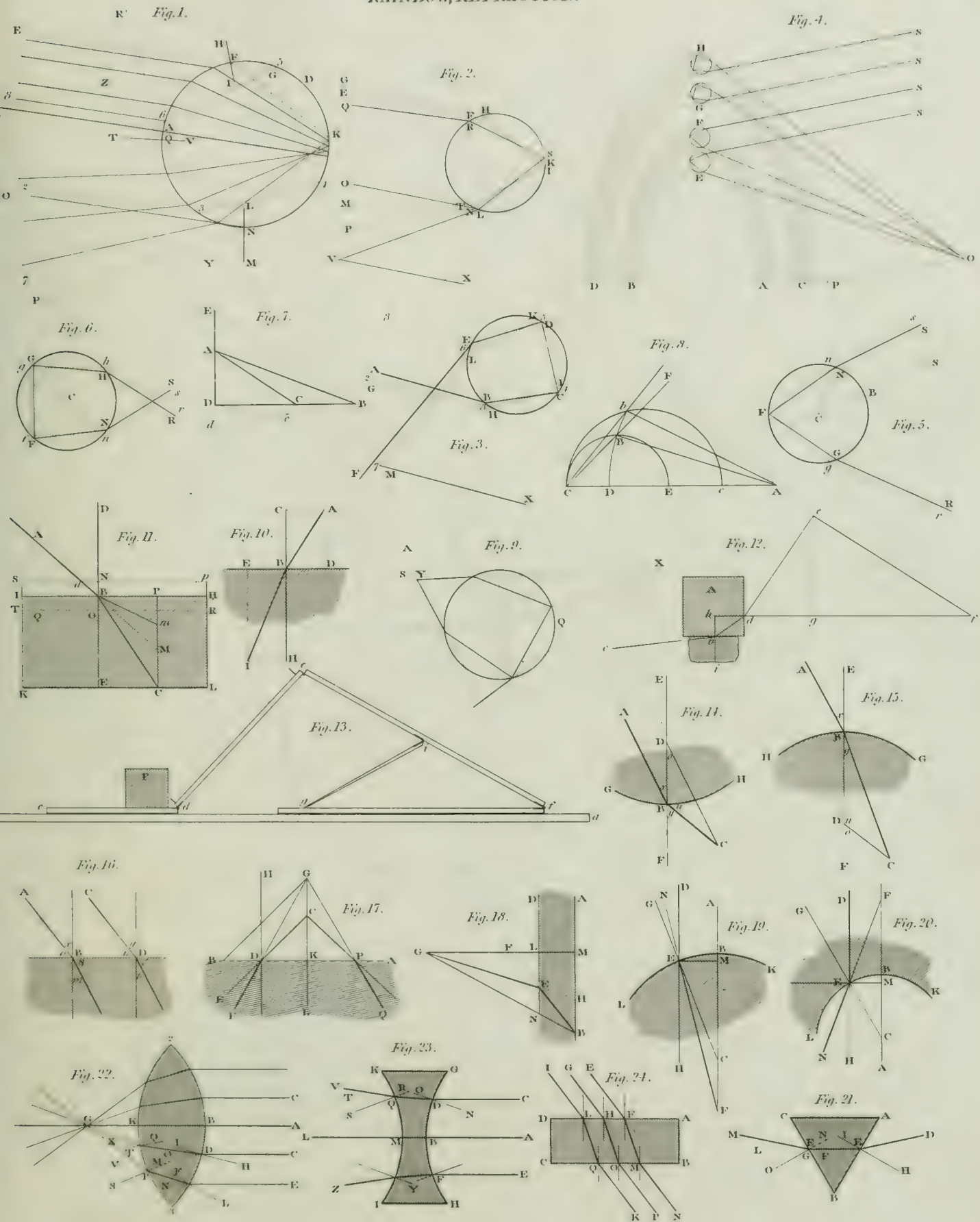
Lowry sculp.

OPTICS.

RAINBOW, REFRACTION.

PLATE XVIII.



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Lowry sculp.

ORGAN.

Fig. 1. & 2.

Fig. 3. & 4.

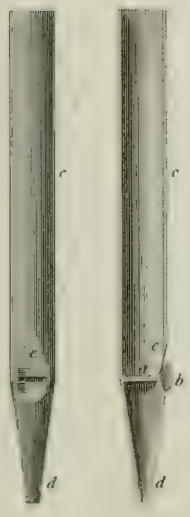


Fig. 5. & 6.

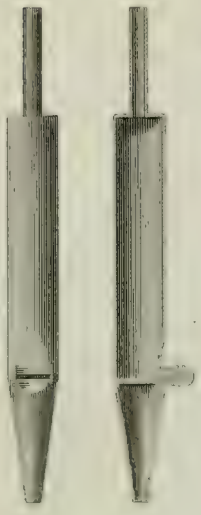
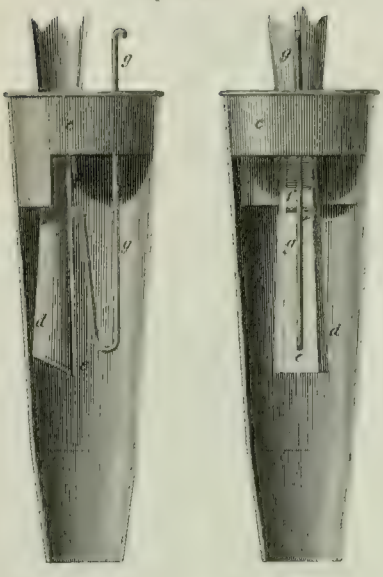


Fig. 7.

Fig. 8. & 9.



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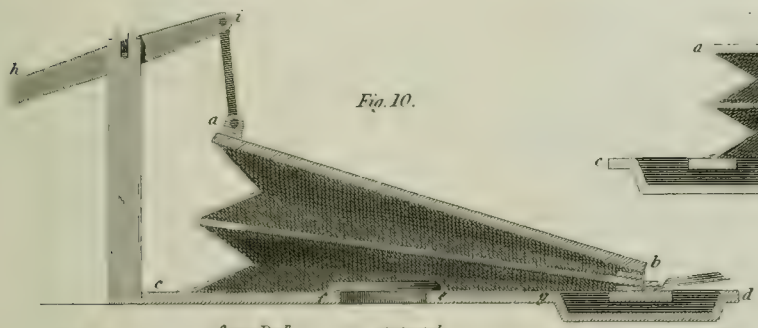

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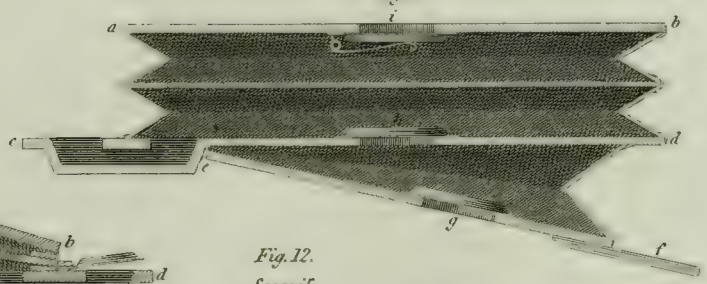

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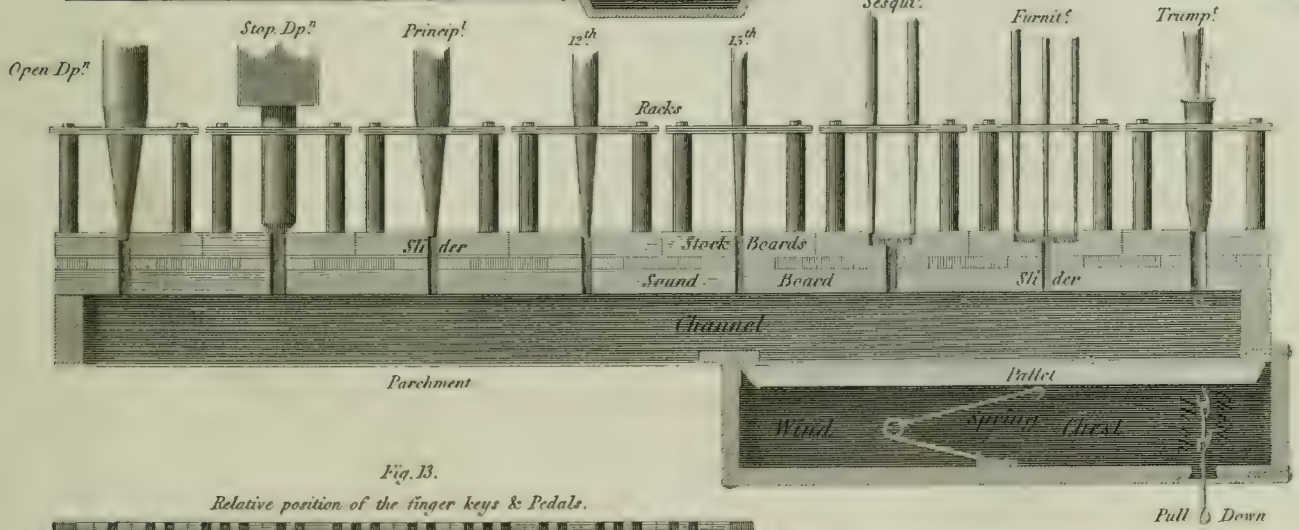
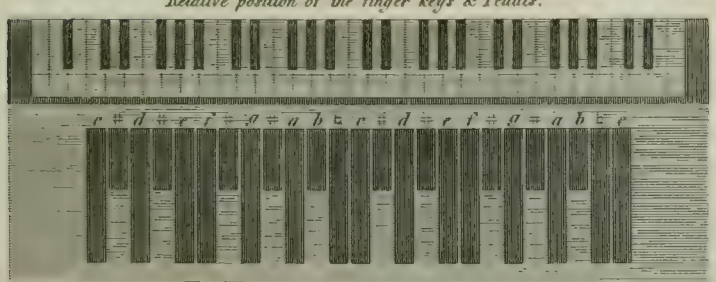


Fig. 13.

Relative position of the finger keys & Pedals.



y Jun. del.

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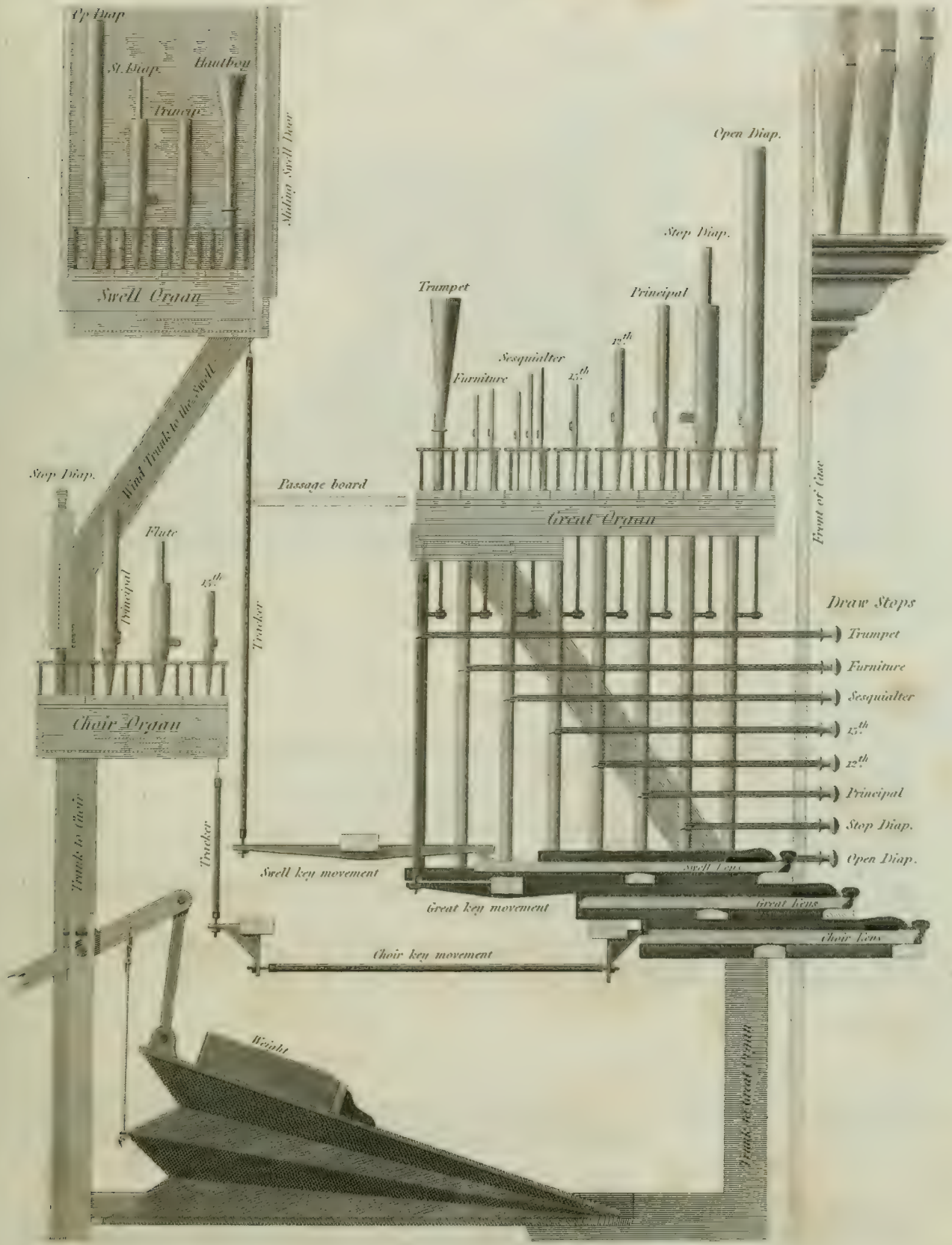
Lowry sculp.

Interior Profile of an English Church **ORGAN.**

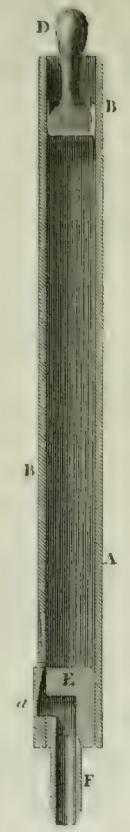


Jun. del. Published as the Act directs, 1816, by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row London. Lowry sc.

Made by Messrs. Perry and Robson, for the Earl of Kirkwall.

Fig. 4.

Fig. 3.



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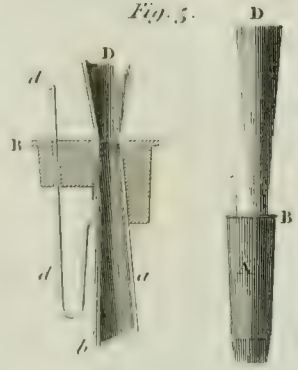

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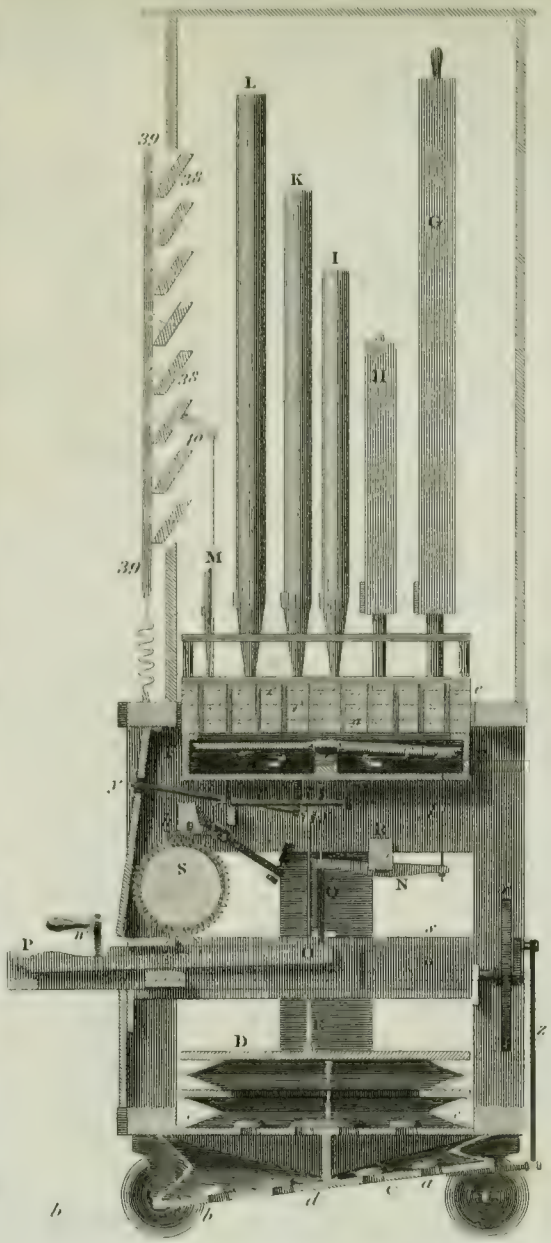

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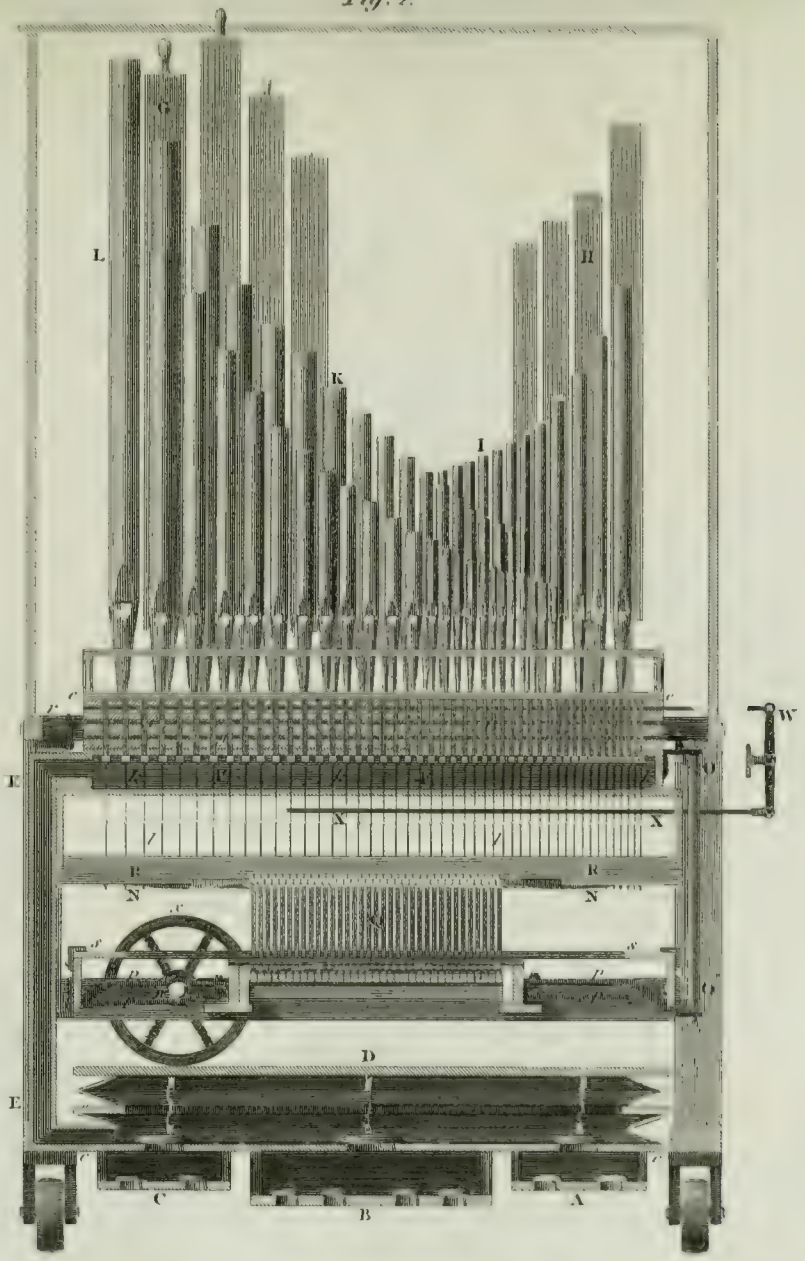

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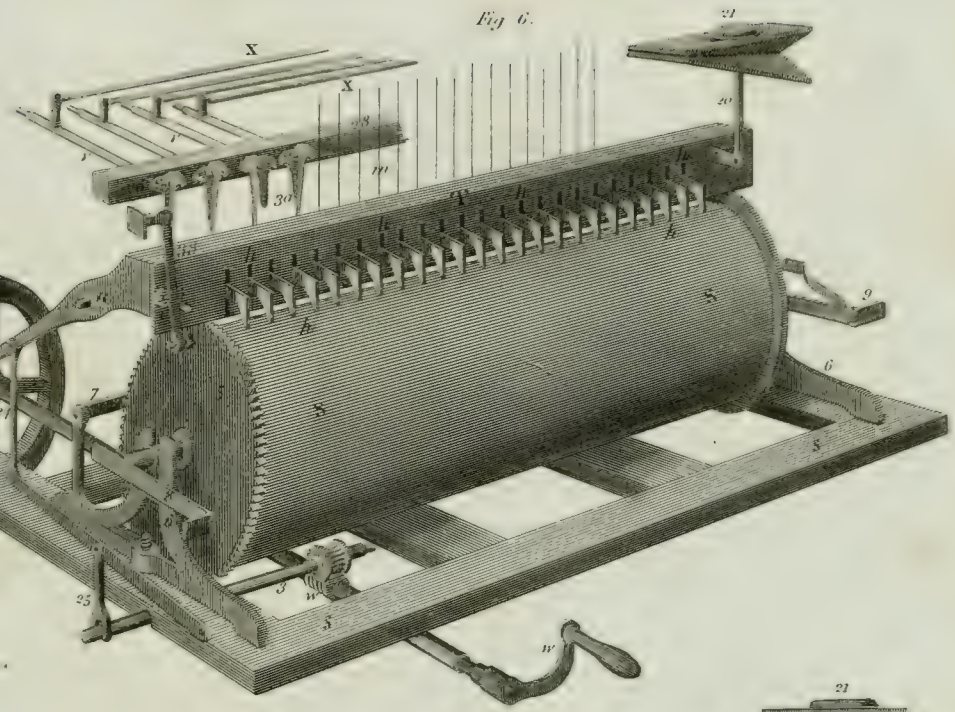
Fig 6.



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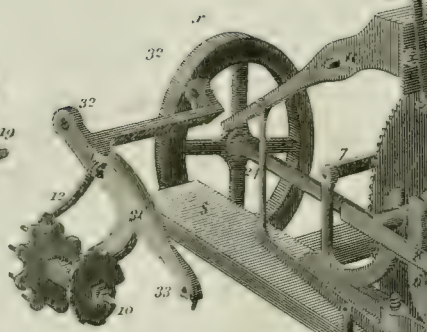

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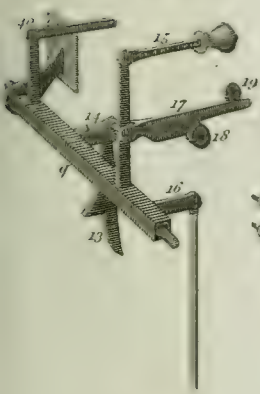

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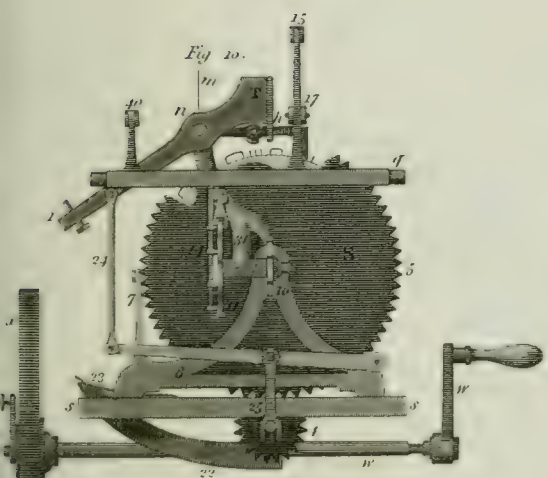

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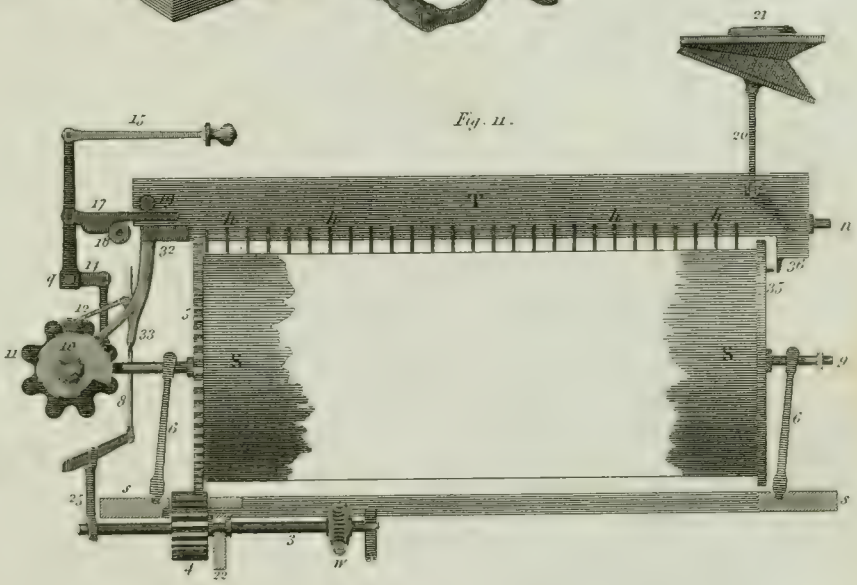
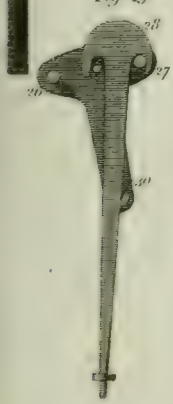


Fig 13



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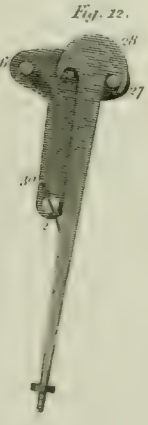

Fig 9.

Fig 14.

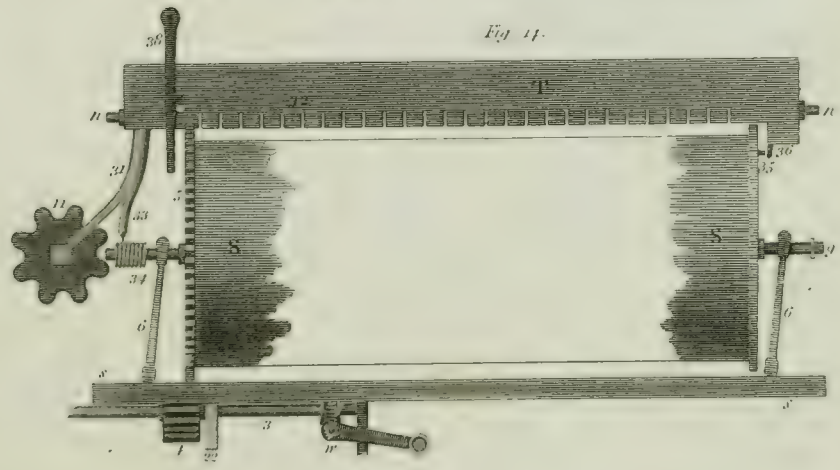

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FIG. 1. FIG. 2

Apollo Belvidere

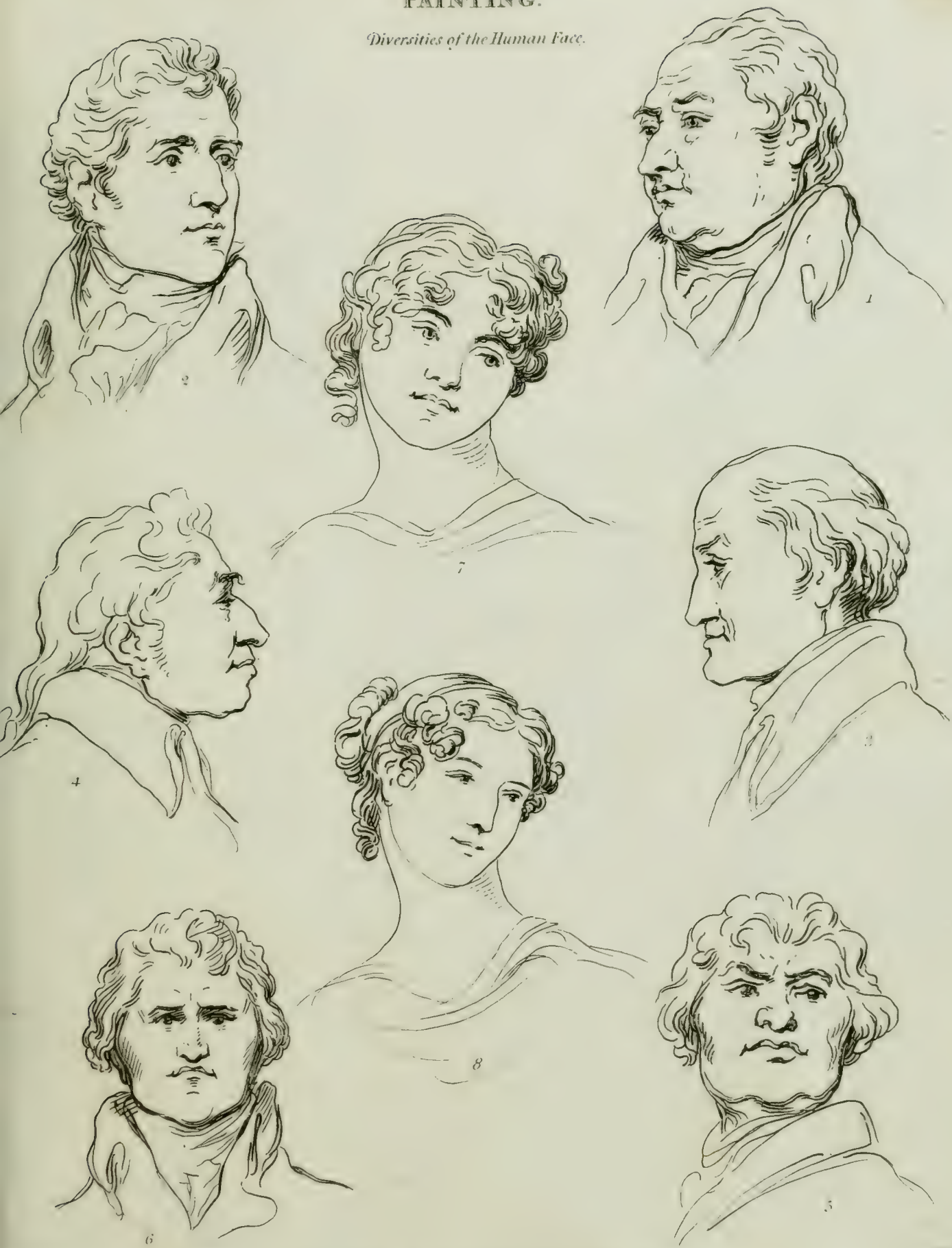
FIG. 3 FIG. 4.

Venus de Medicis

Millipt Esq. R.A. del T.Milton scul

PAINTING.

Diversities of the Human Face.



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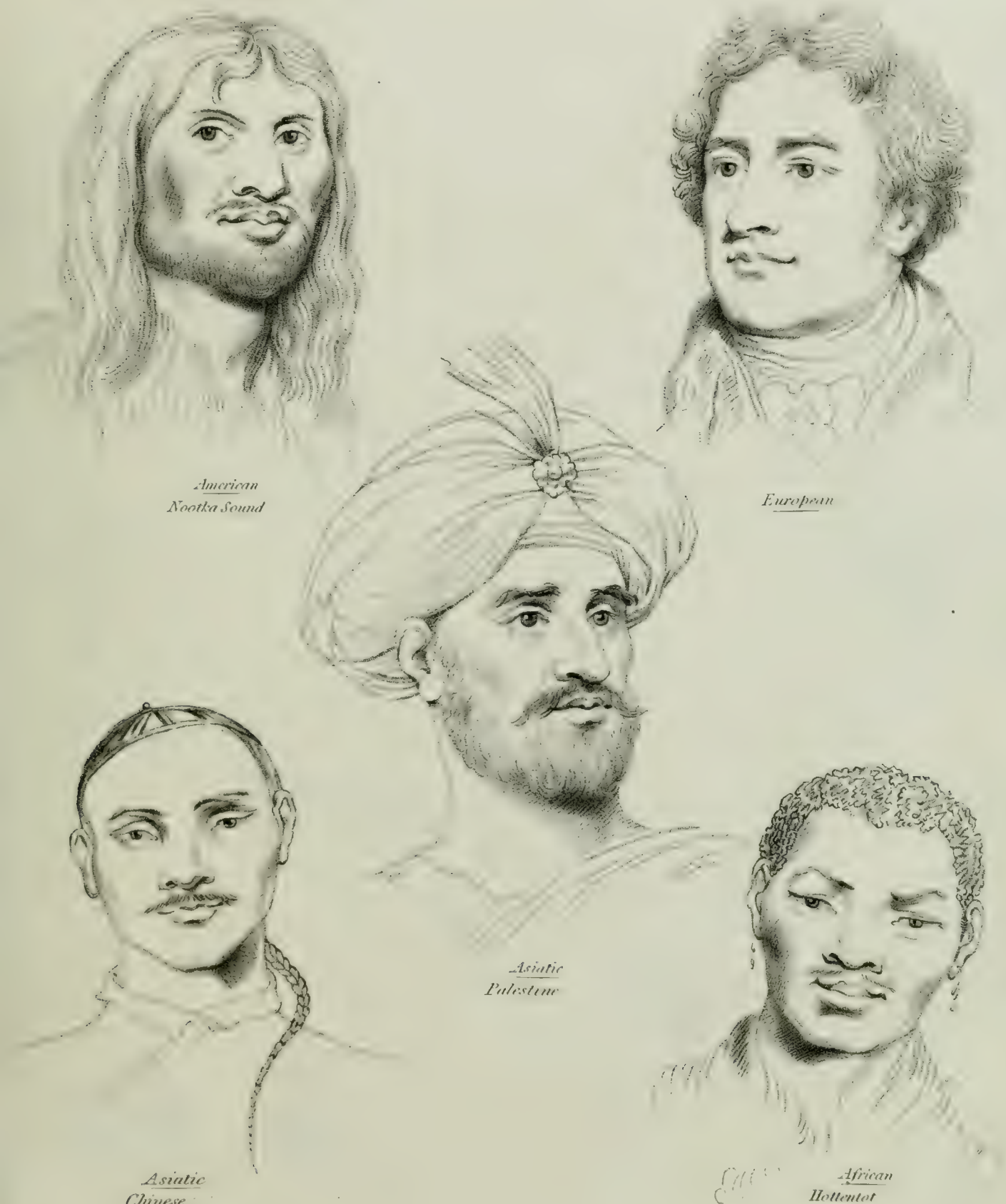

American
Nootka Sound

European

Asiatic
Palestine

Asiatic
Chinese

African
Hottentot

T. Phillips Esq R.A. del.

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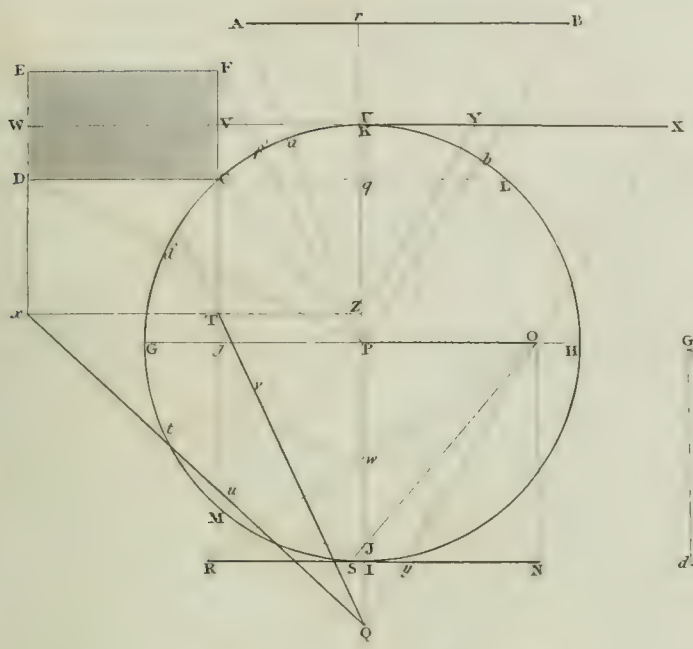
Fig. 2. N° 1.



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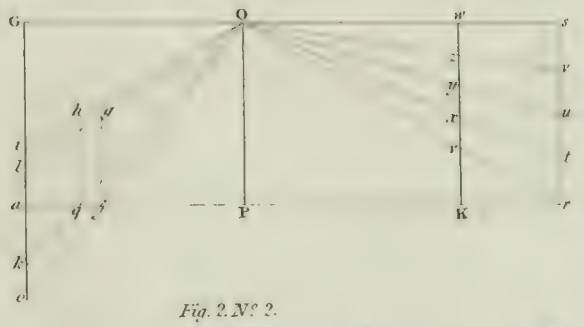


Fig. 2. N° 2.

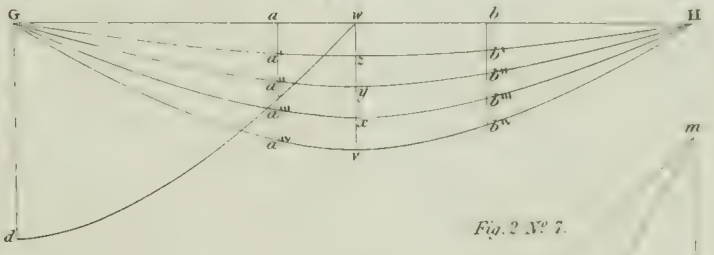


Fig. 2. N° 7.

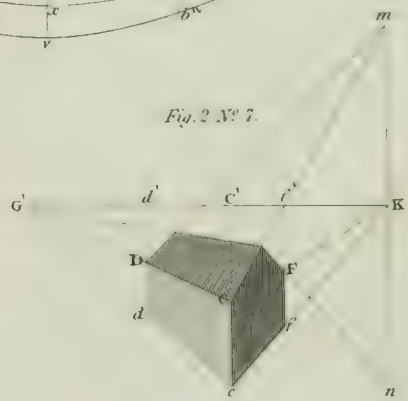
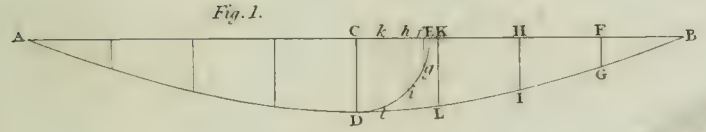


Fig. 1.



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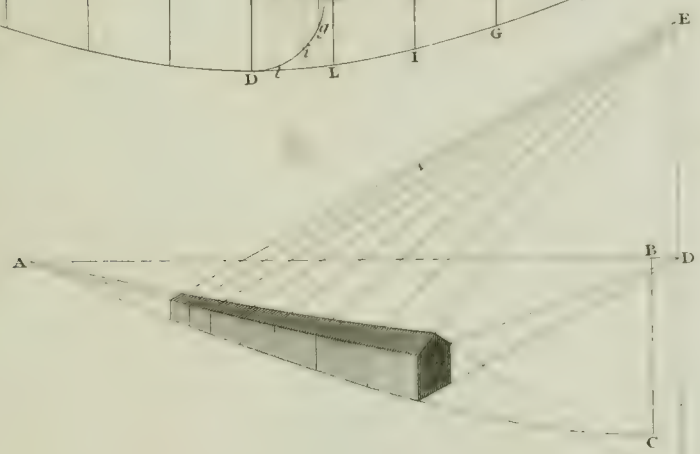

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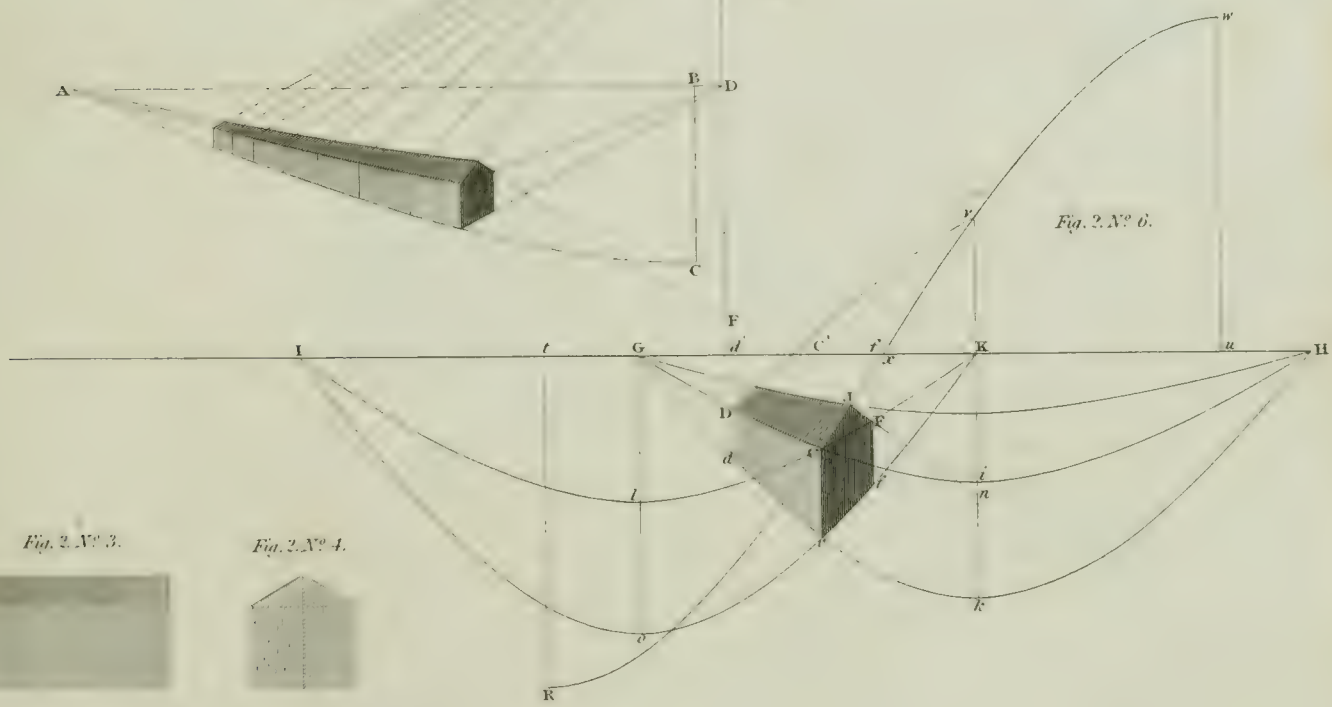

Fig. 2. N° 3.

Fig. 2. N° 4.

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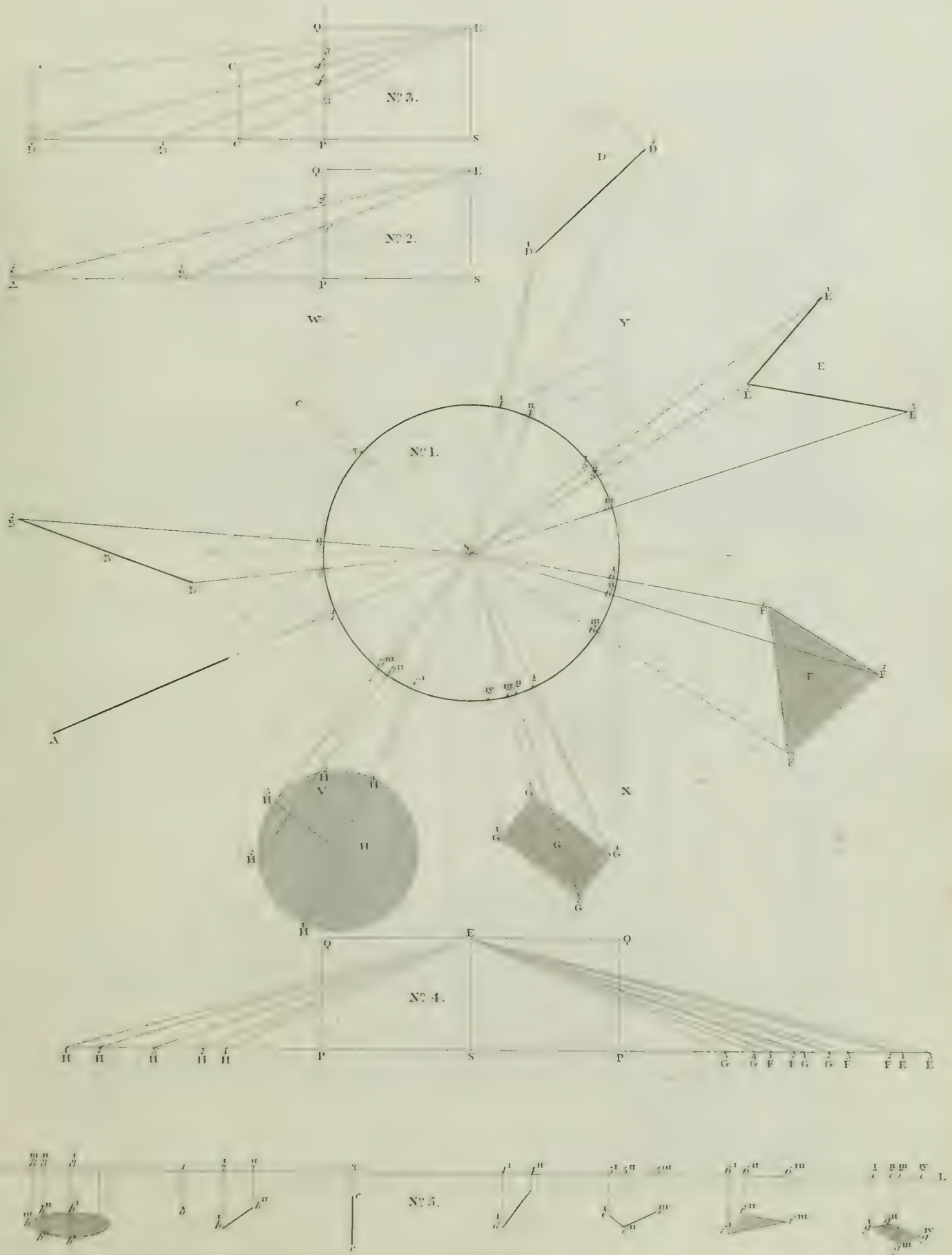

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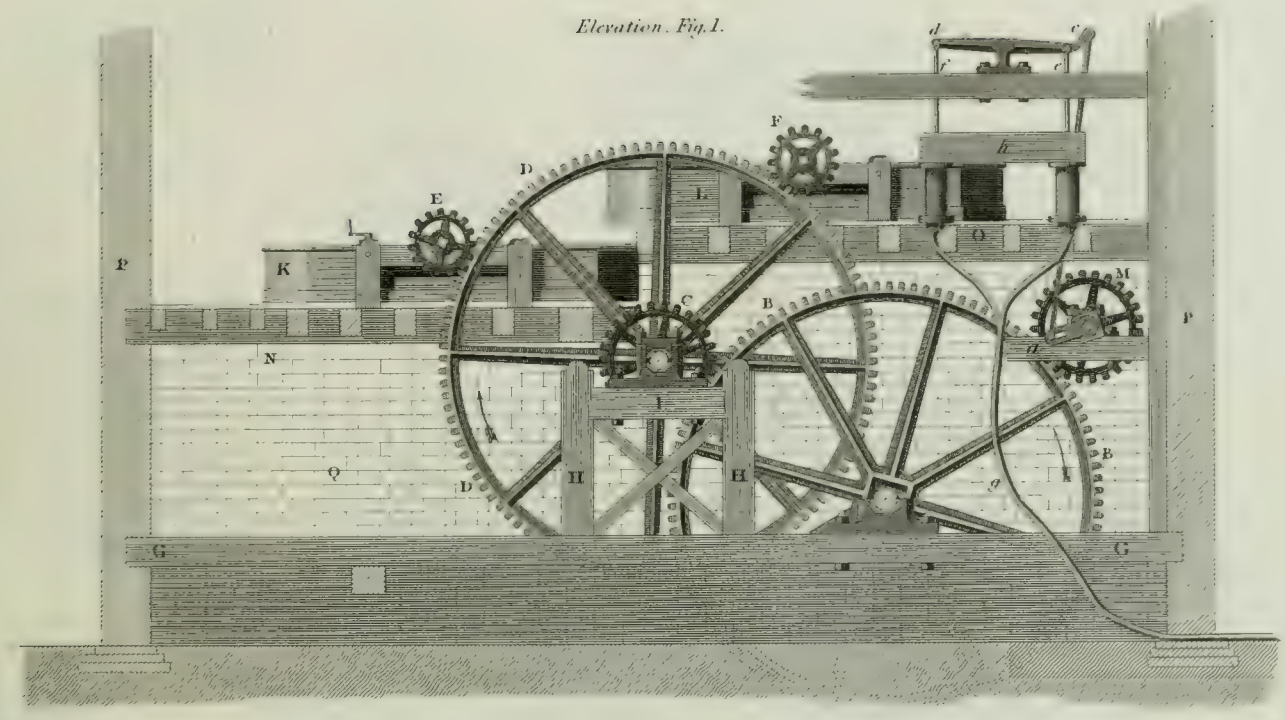
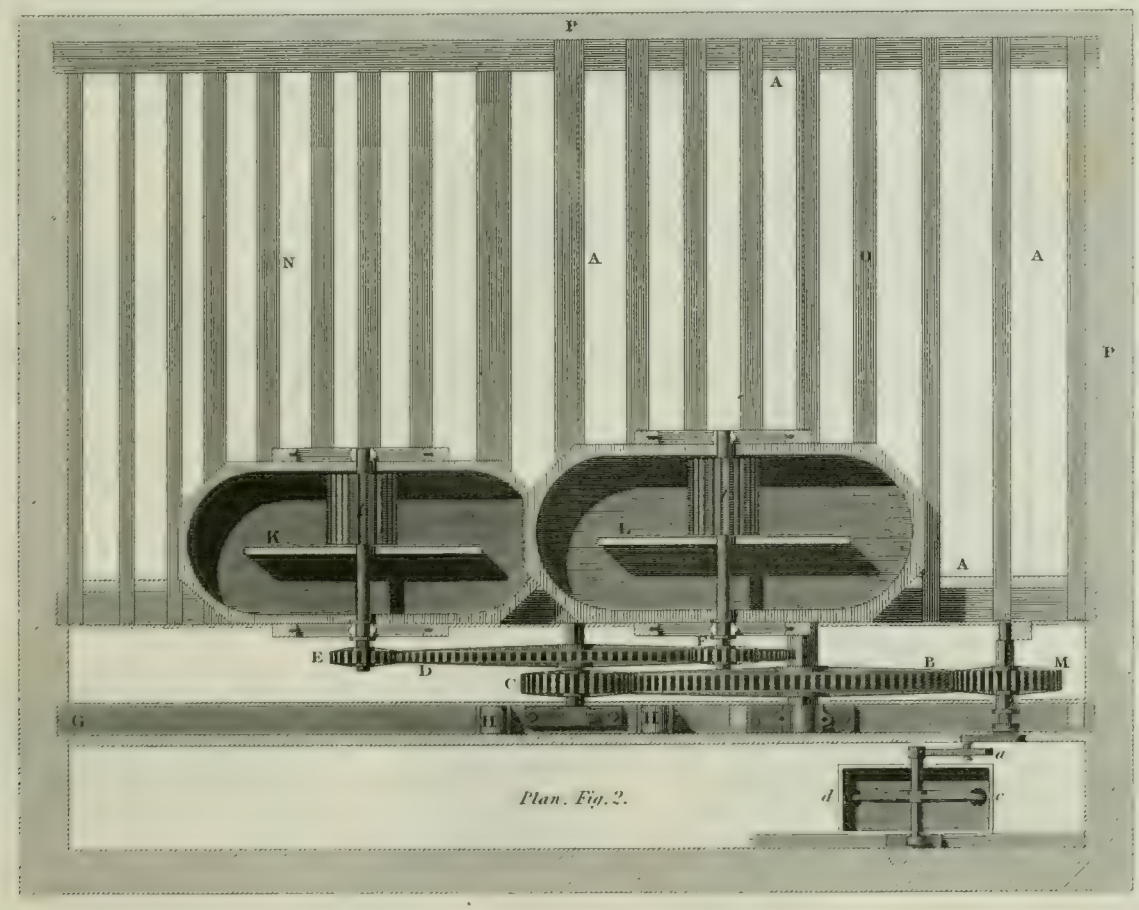
Elevation. Fig. 1.





Plan. Fig. 2.

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Fig. 5

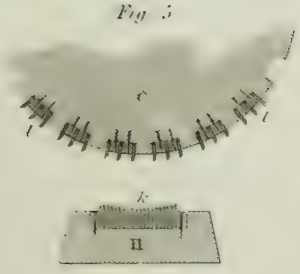


Fig. 1. Section of an Engine.

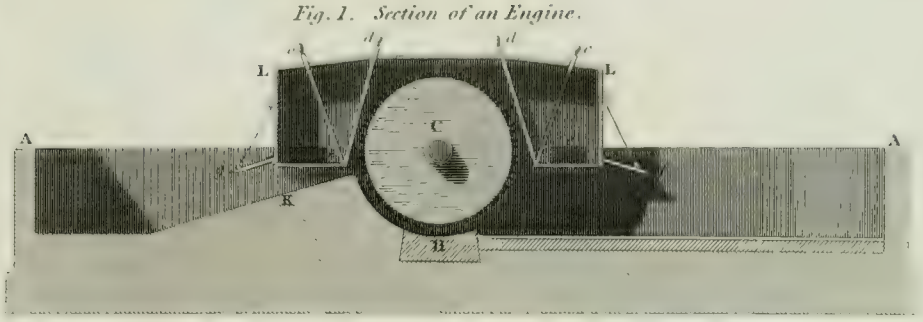
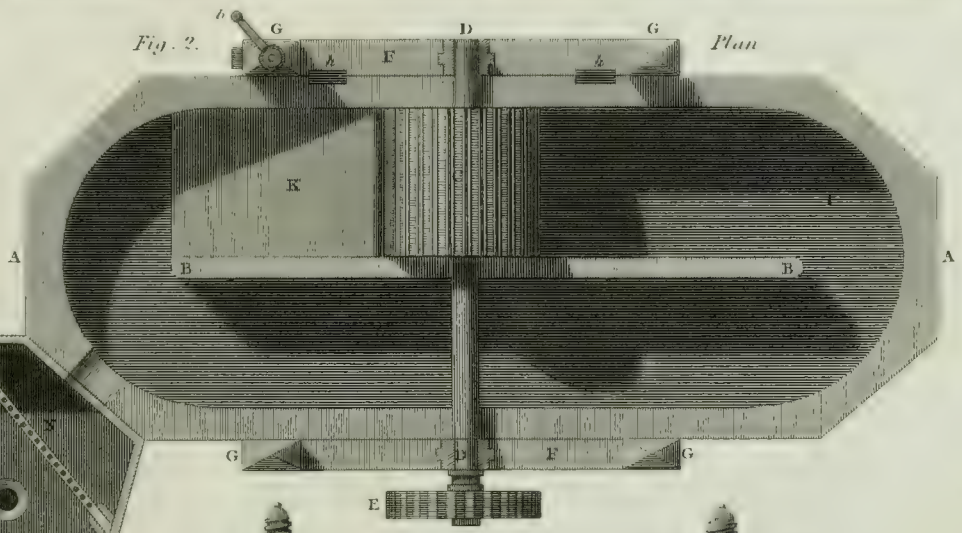
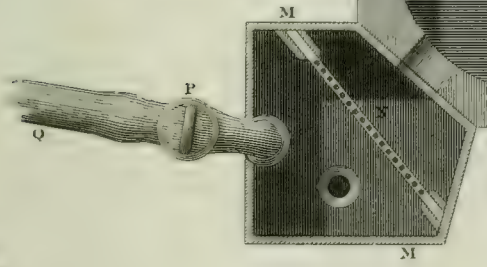


Fig. 4.

Fig. 2. Plan





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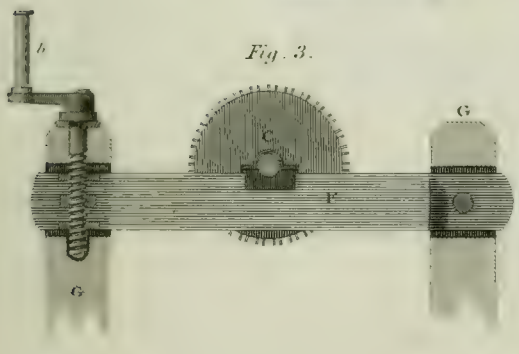

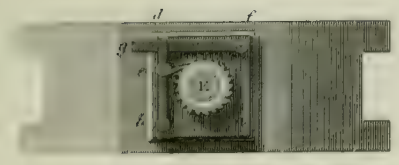

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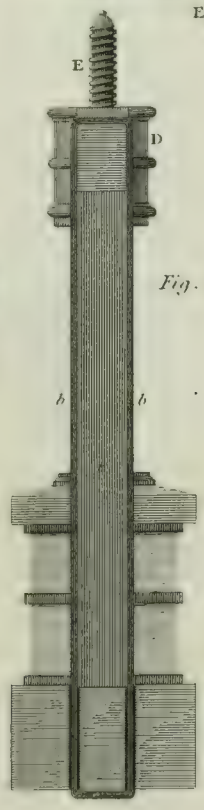
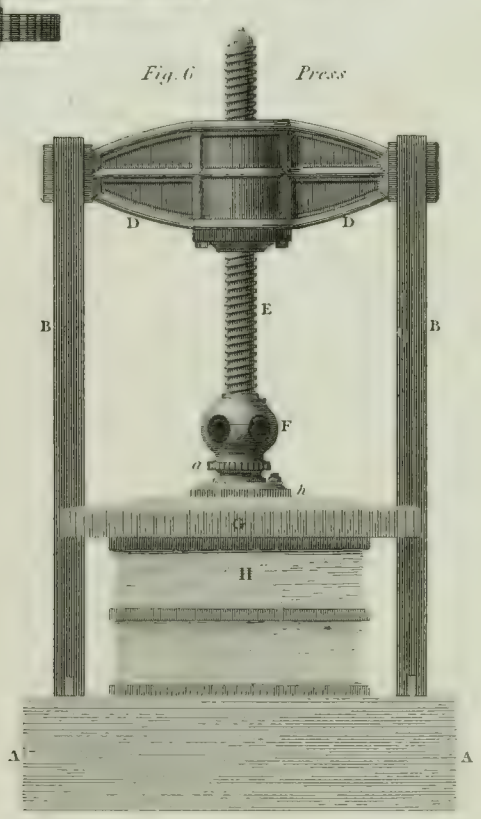


Fig. 6 Press



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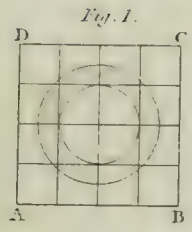
PERSPECTIVE.

ANAMORPHOSIS.

Fig. 1.



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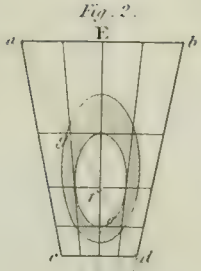

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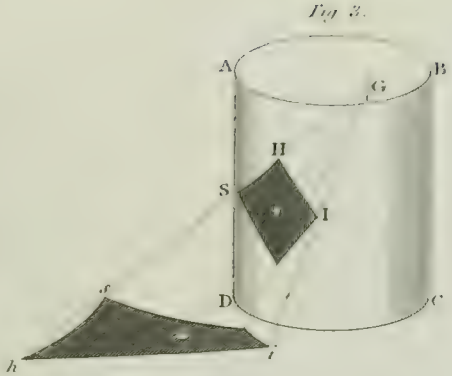
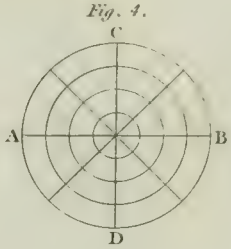


Fig. 4.



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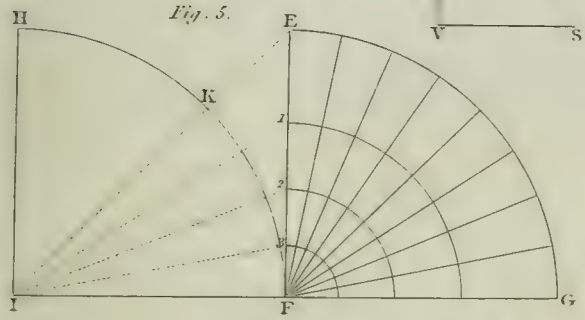
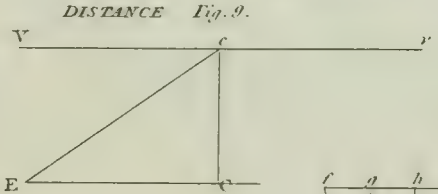


DISTANCE Fig. 9.



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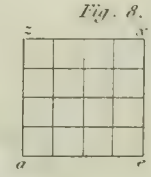

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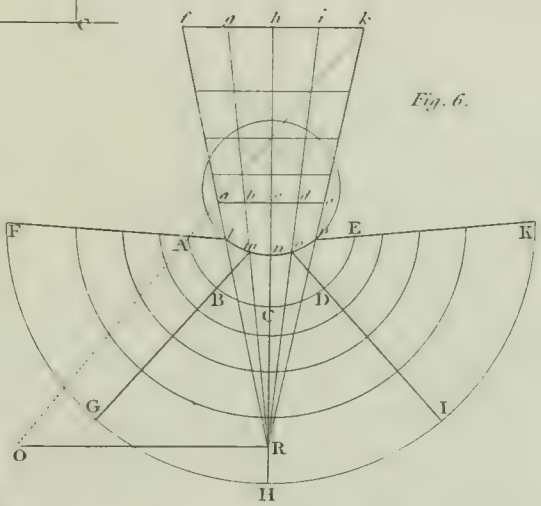
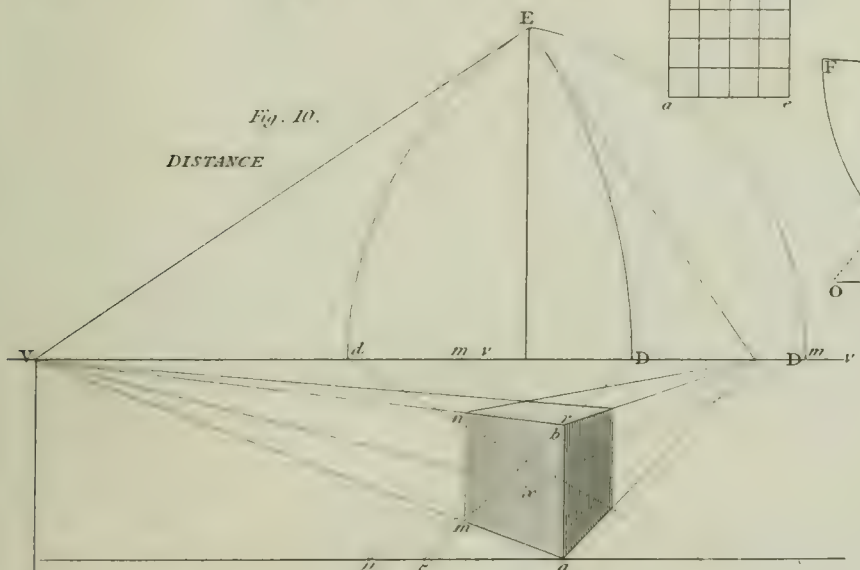


Fig. 10.

DISTANCE



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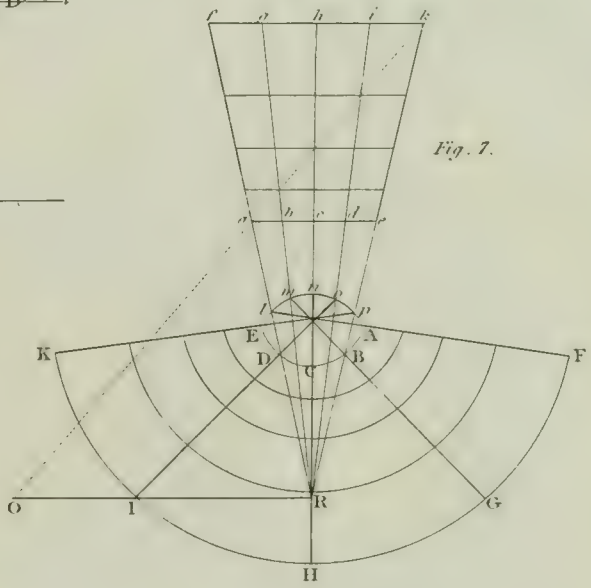

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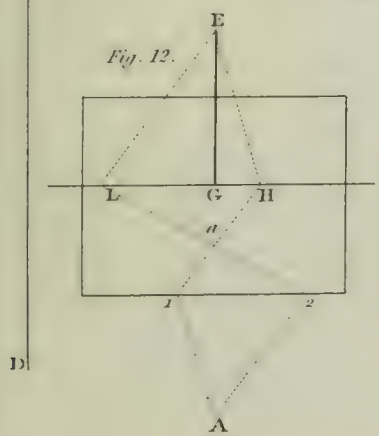

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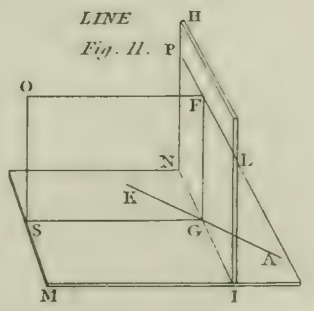

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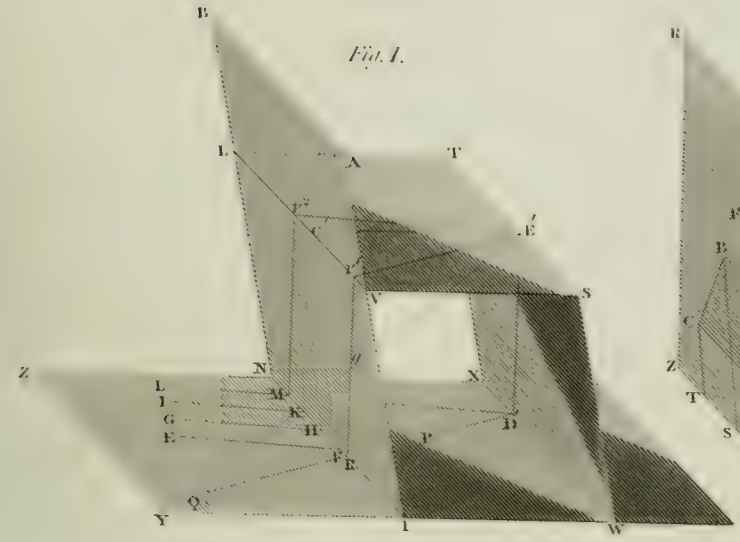

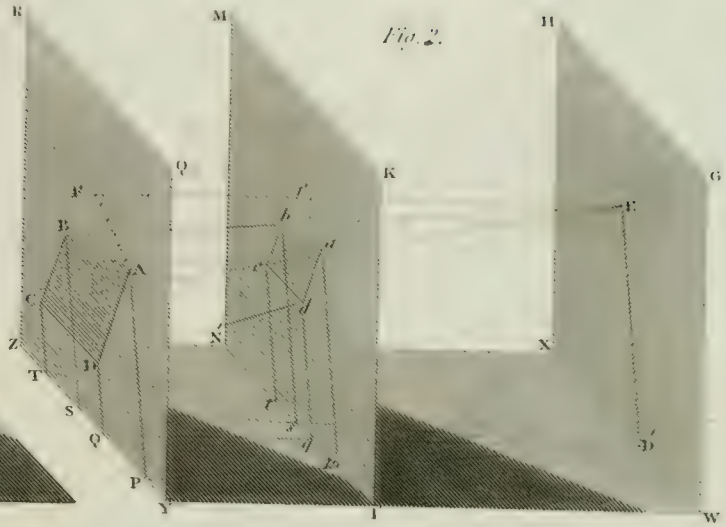

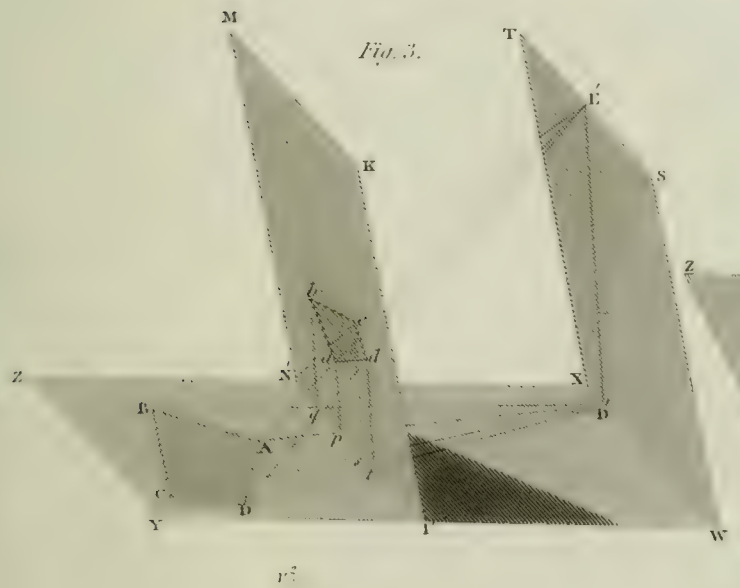

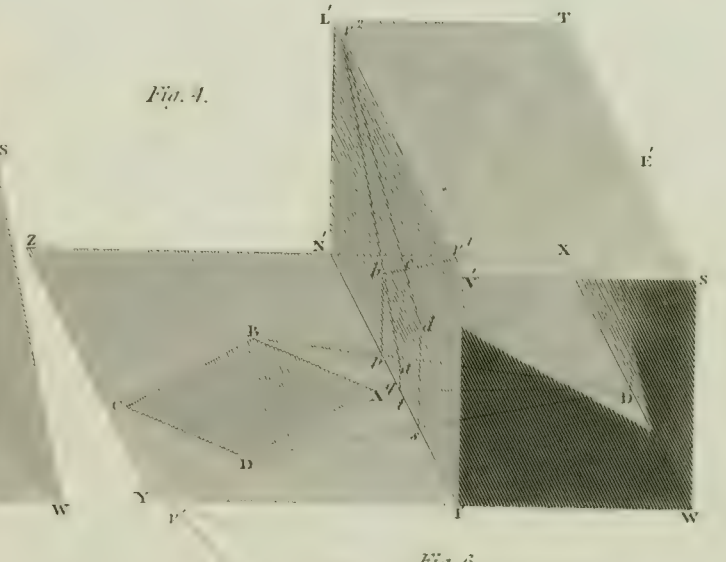

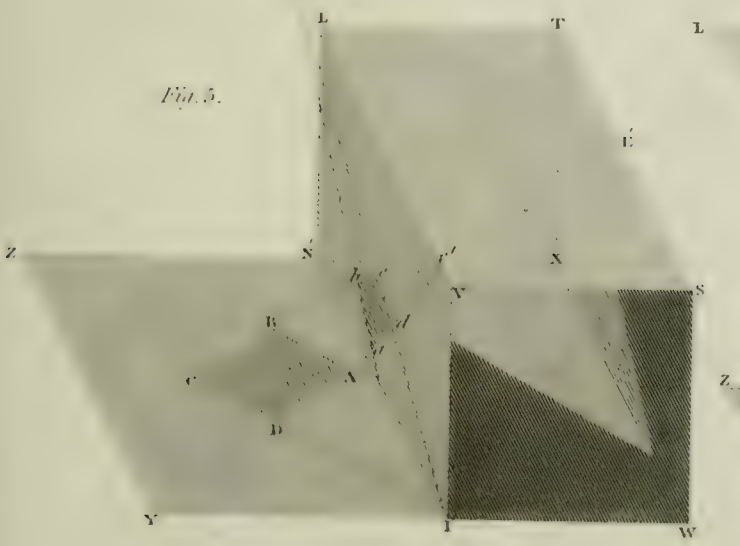

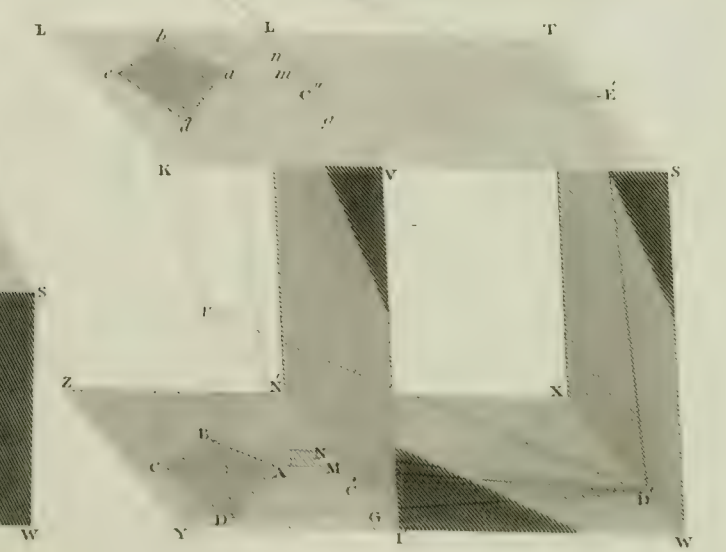

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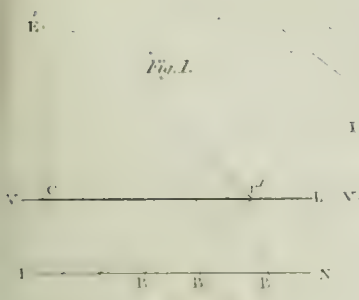

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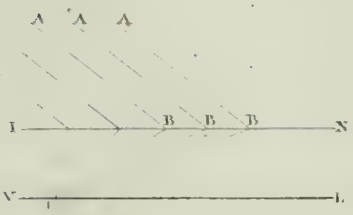

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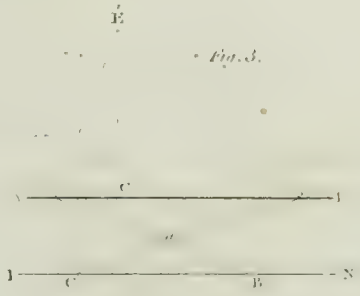

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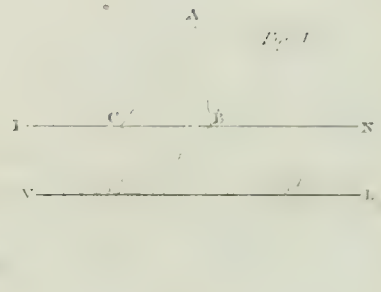

Fig. 5.

Fig. 6.

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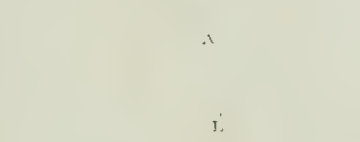

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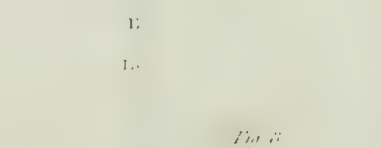

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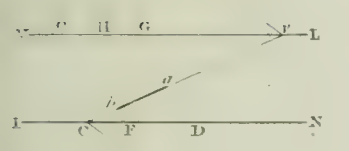

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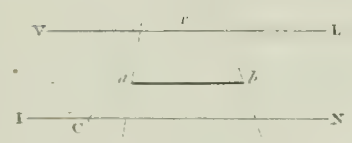

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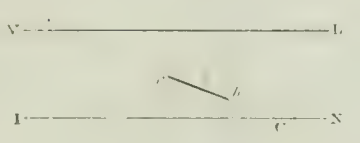

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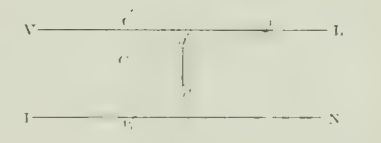

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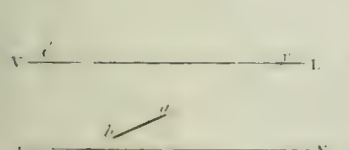

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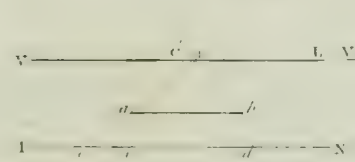

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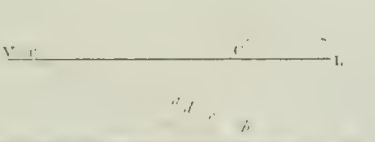

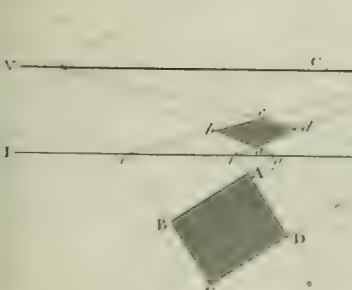

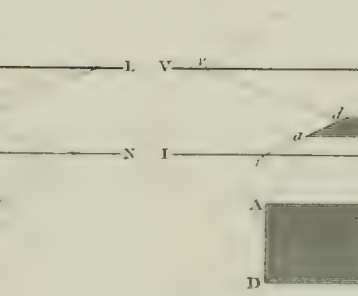

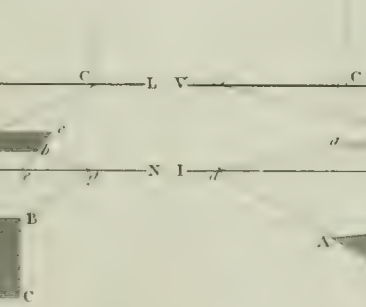

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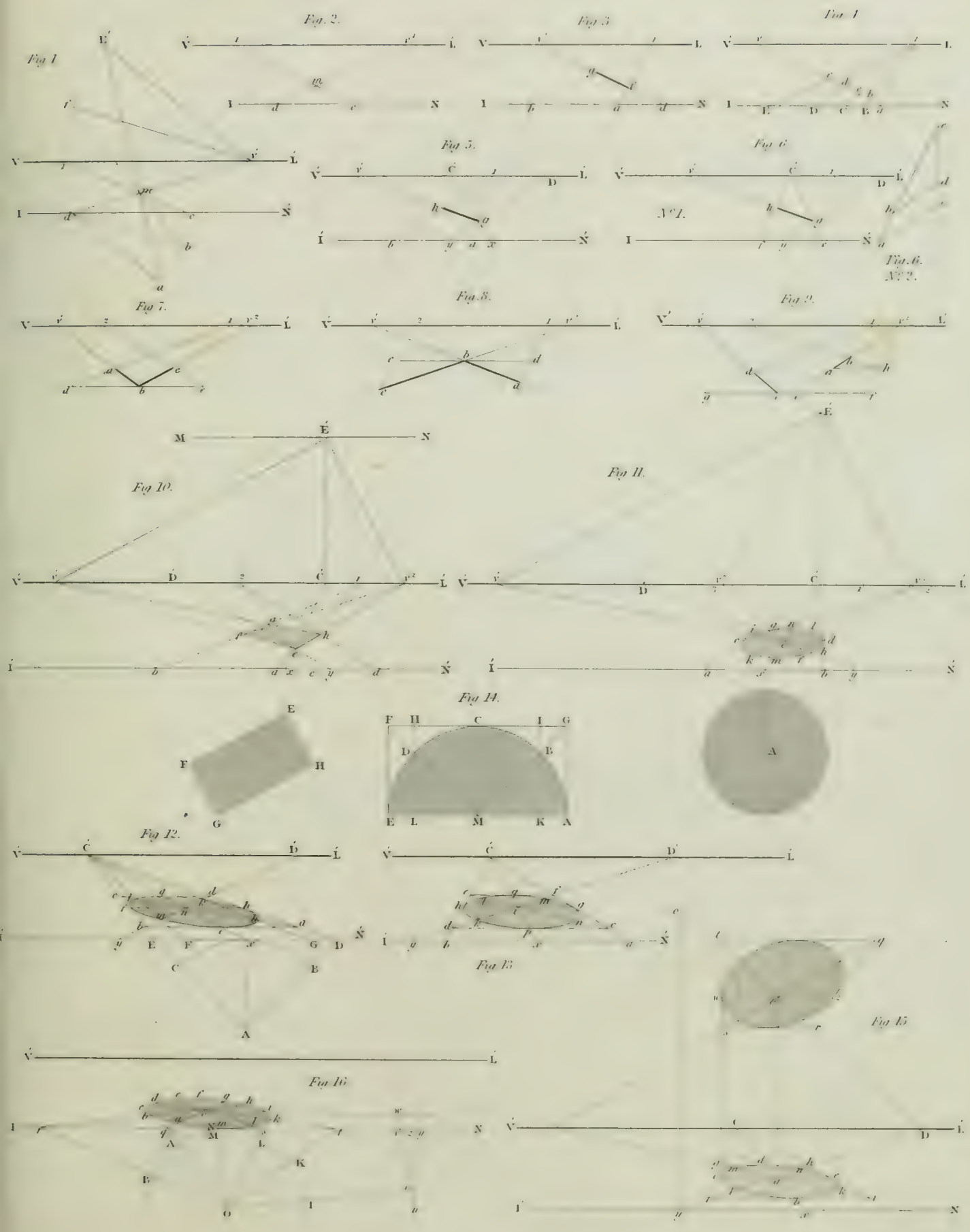

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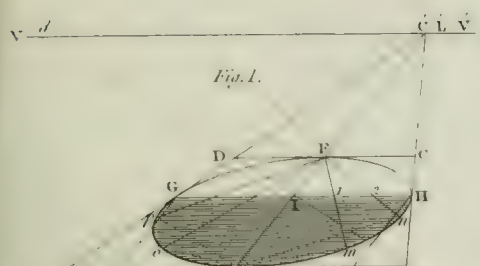
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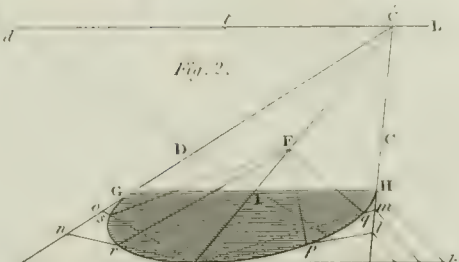
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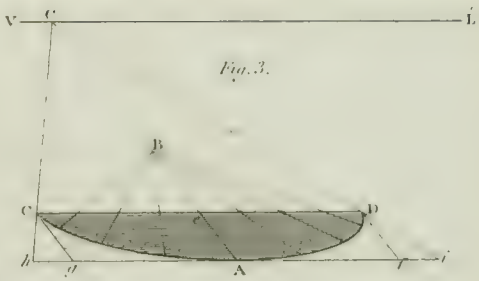
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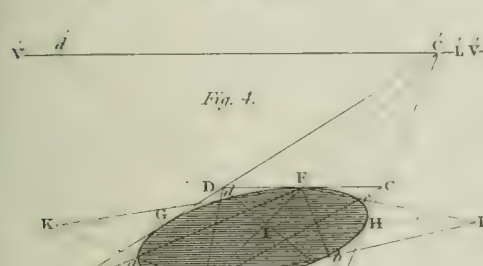
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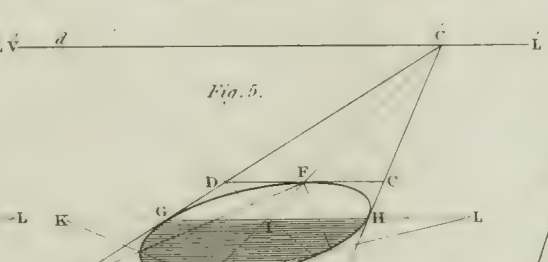
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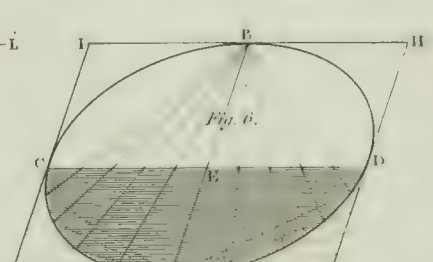
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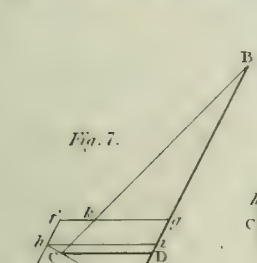
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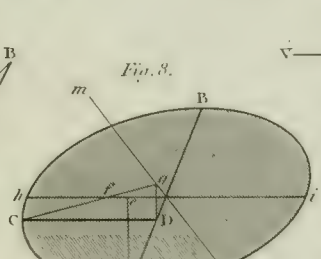
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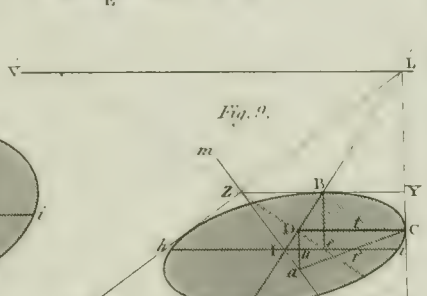
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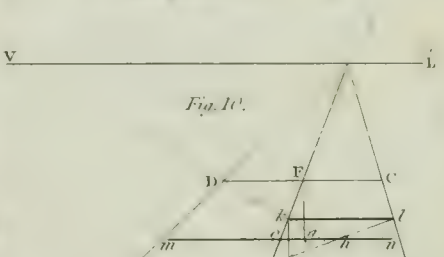
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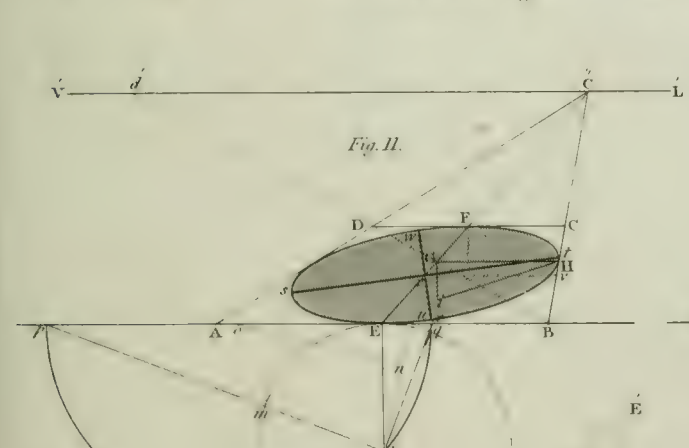
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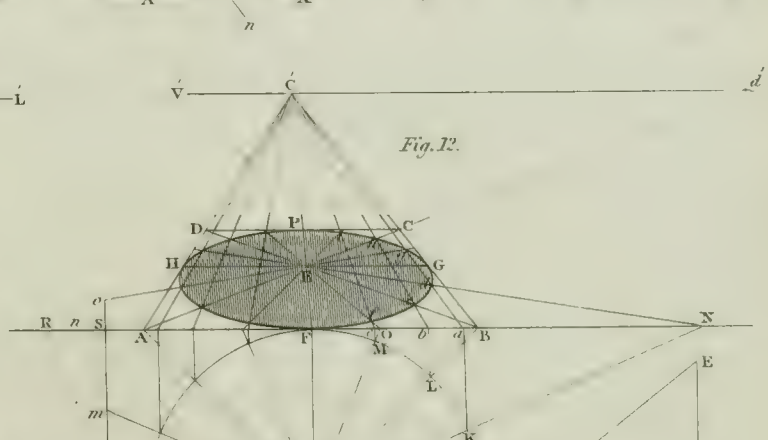
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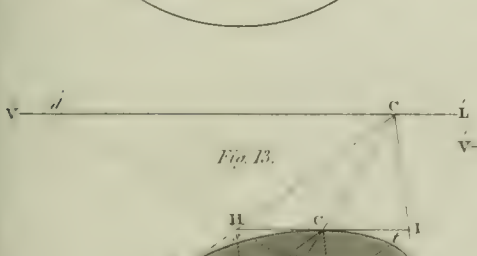
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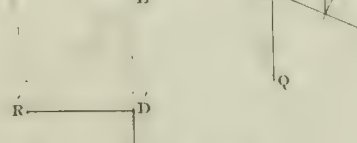
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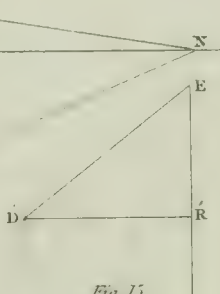
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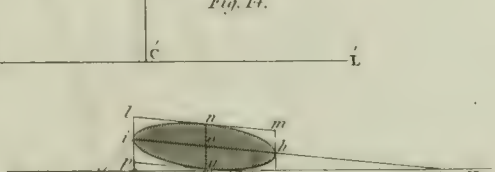

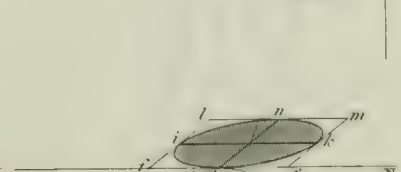

above methods invented & drawn by P. Nicholson.

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Engraved by W. L

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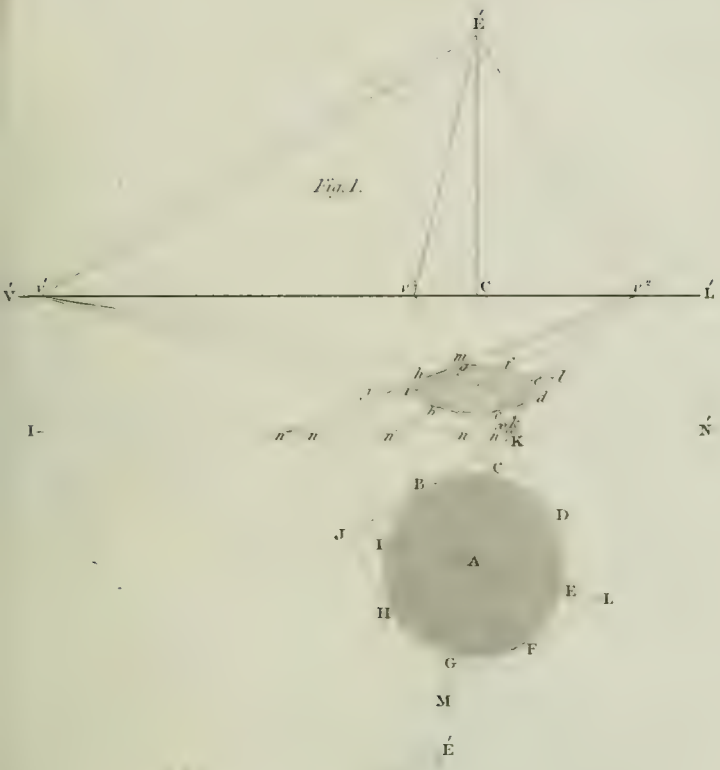

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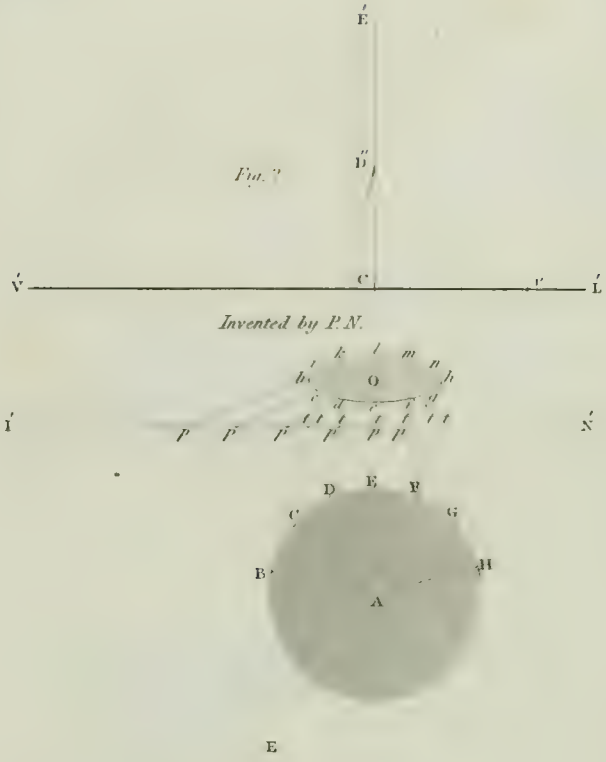

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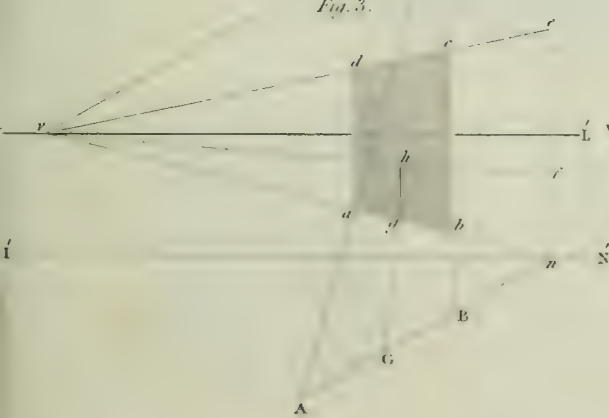

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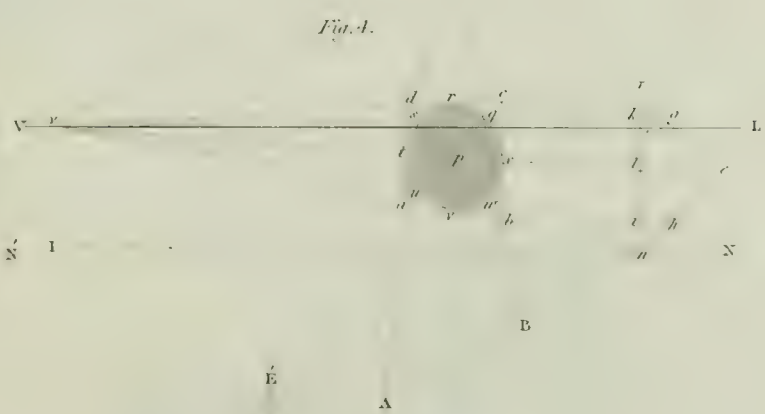

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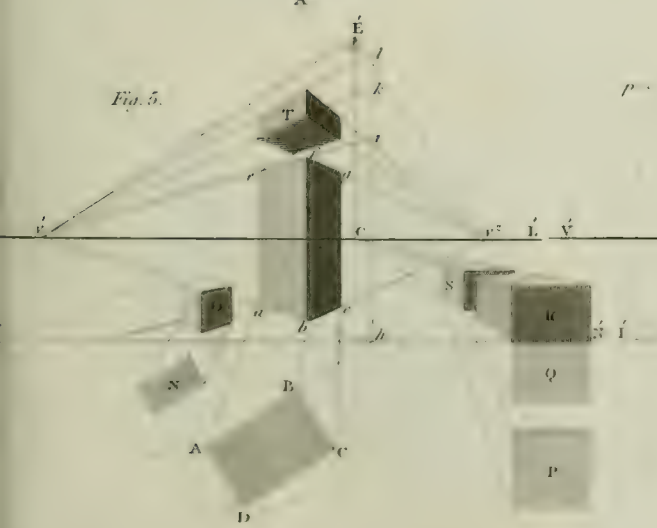

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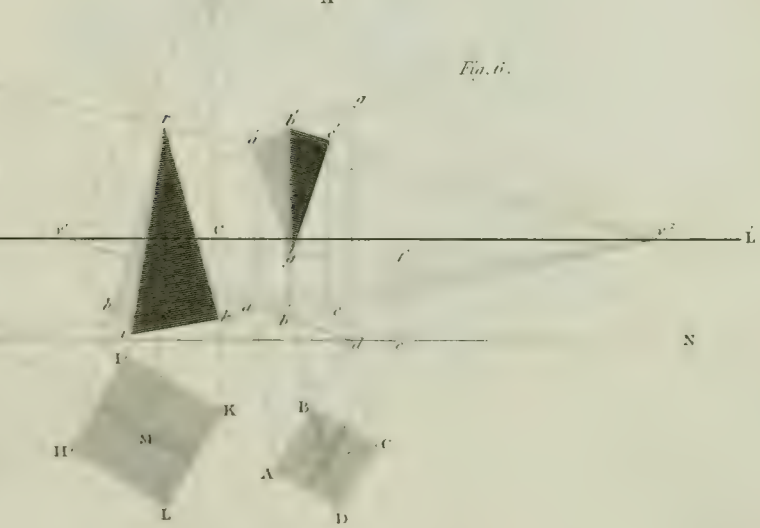

P. Nicholson. Published as the Act directs, 1813, by Longman, Hurst, Rees, Orme and Brown, Paternoster Row, London. Engraved by W. Lowry.

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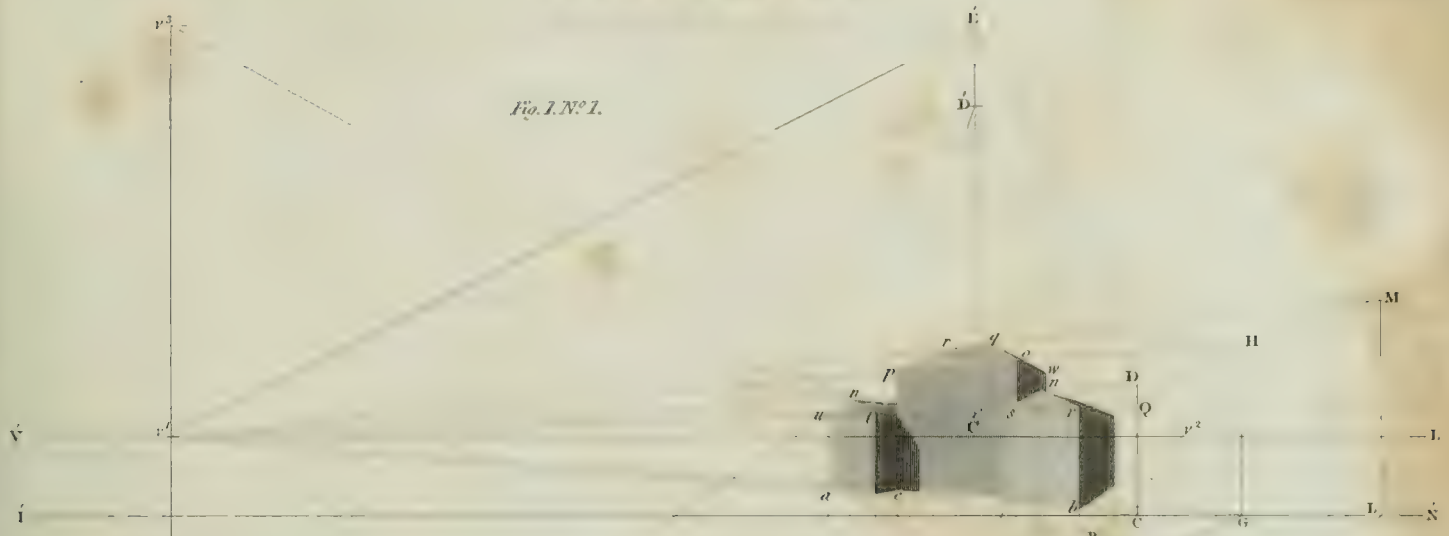

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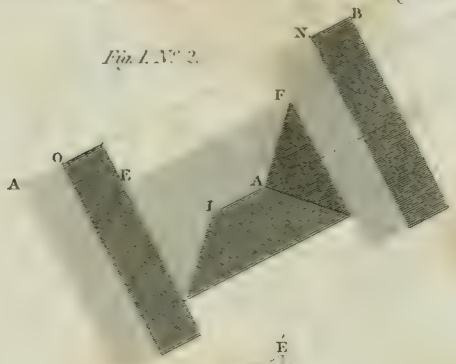

Fig. 1. N° 3.

Fig. 2. N° 4.

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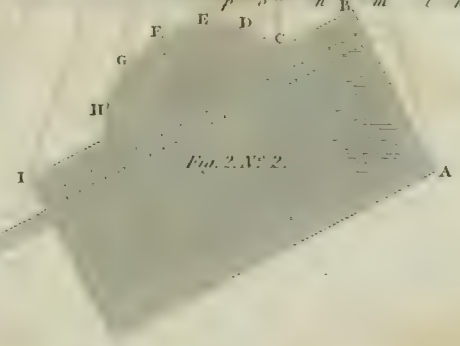
Fig. 2. N° 3.

Fig. 2. N° 2.



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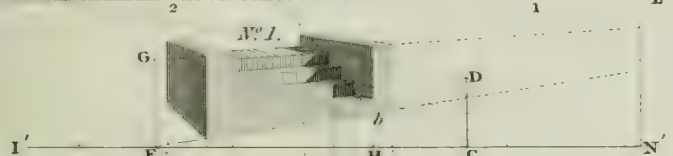

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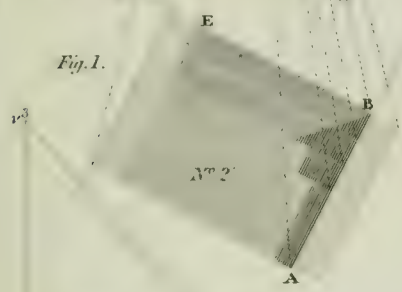

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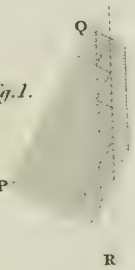

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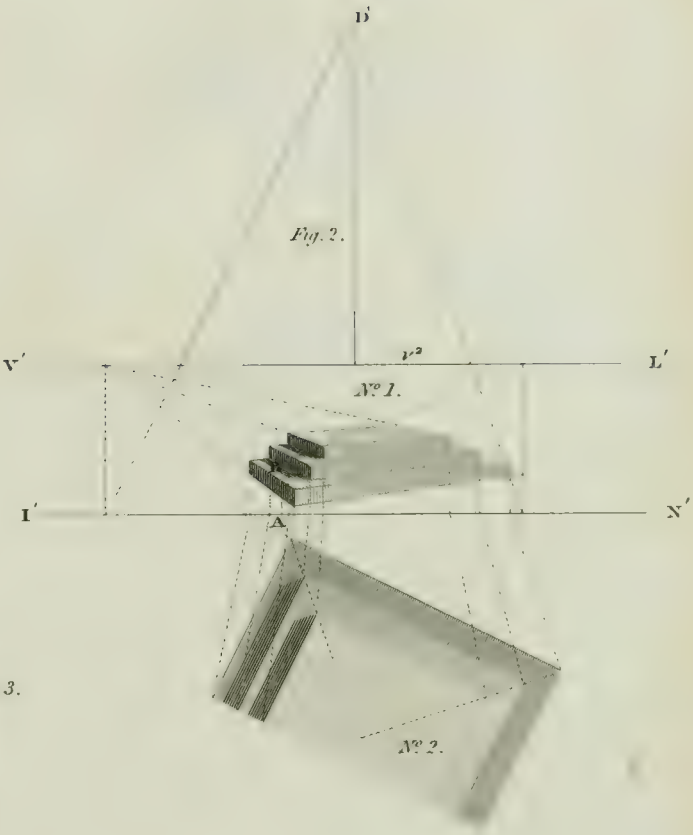

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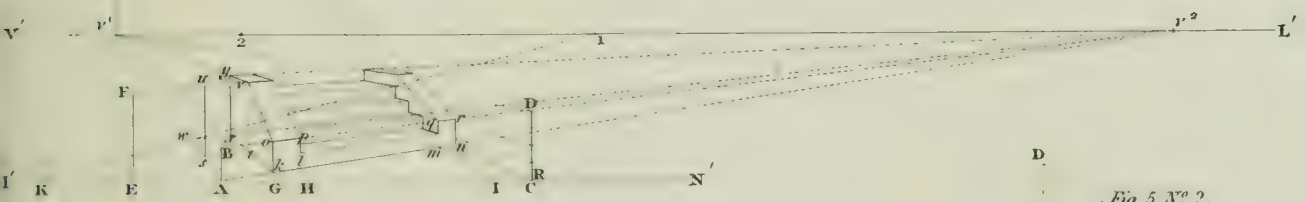

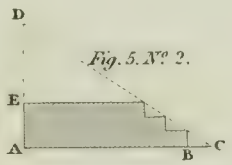

Fig. 5. N°. 2.

Fig. 4. N°. 1.

Fig. 6.

P. Nicholson del. Published as the Act directs, 1813, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. W. Lowry Sculp.

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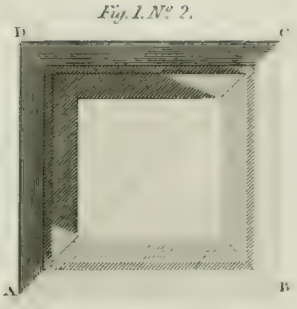
Fig. 1. N° 2.



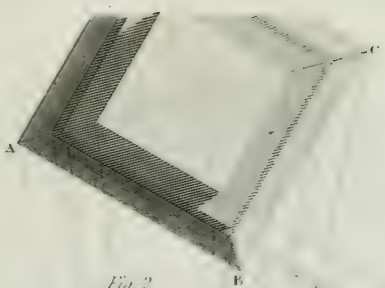


Fig. 2.

Fig. 1.

Improved by P. Nicholson.

Fig. 1. N° 3.

Improved by P. Nicholson.

Fig. 3.

Invented by Nicholson.

Fig. 4. Invented by P. Nicholson.

Fig. 5.

Fig. 7

Fig. 6. N° 2.

Fig. 6. N° 1. Invented by P. Nicholson.

P. Nicholson.

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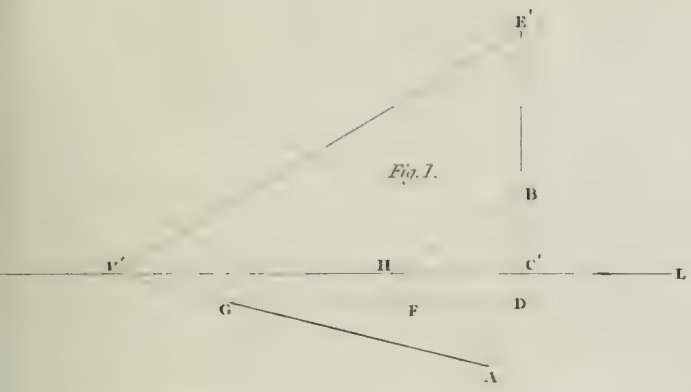

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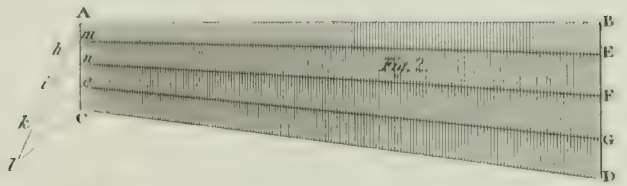

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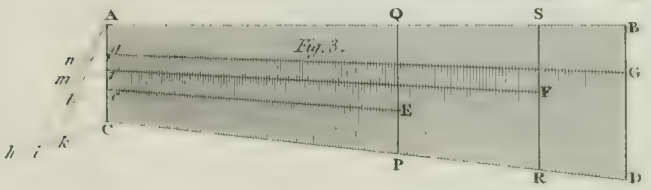

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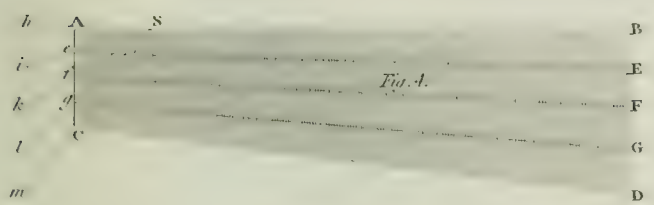

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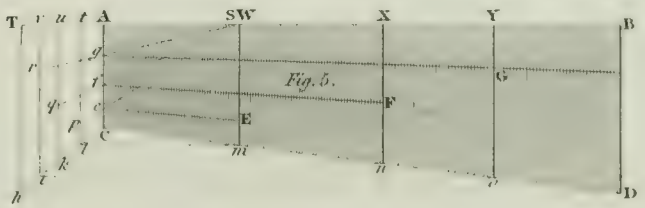

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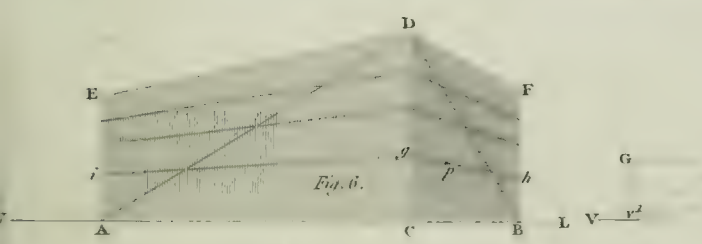

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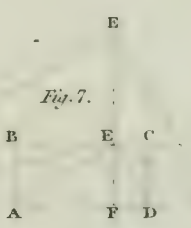

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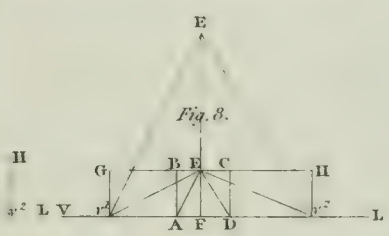

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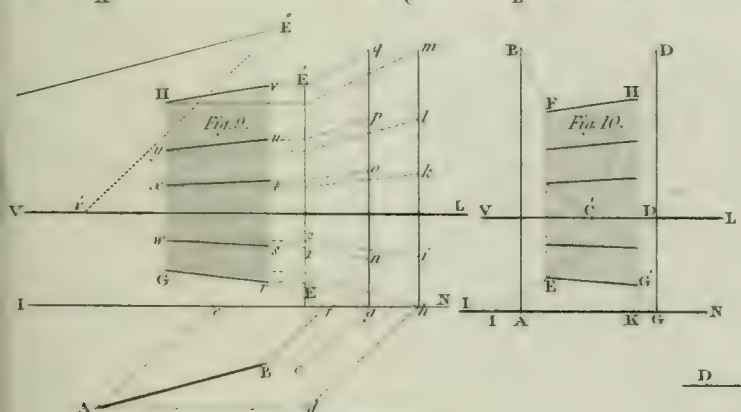

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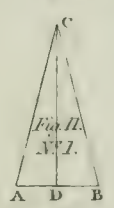
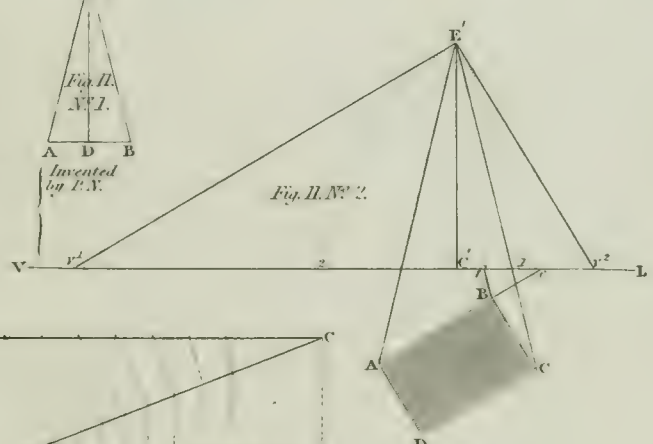


Fig. II. N°. 1.

Invented by P. N.



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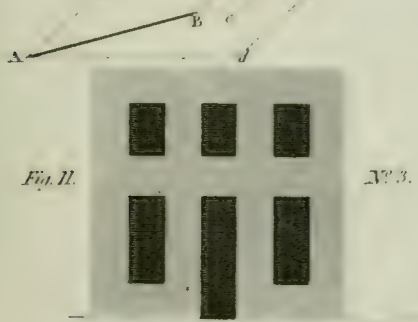
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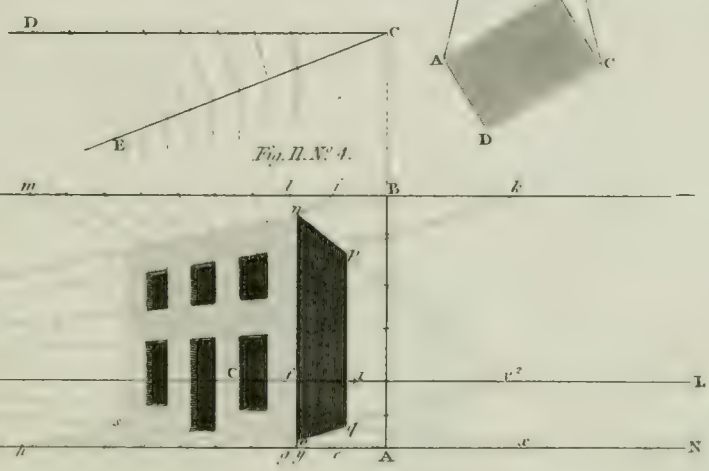

Fig. II. N°. 4.

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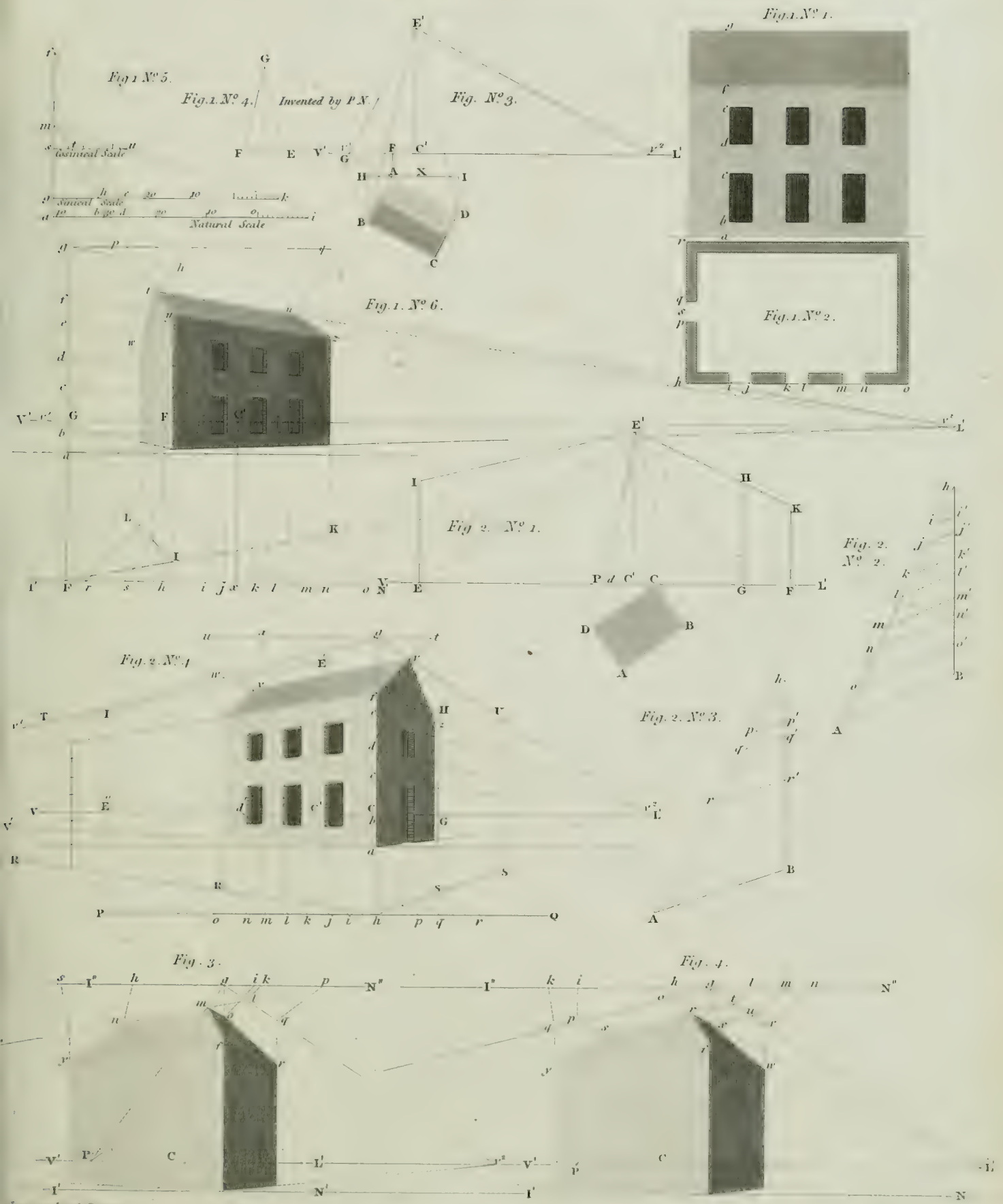

Improved and Drawn by P. Nicholson

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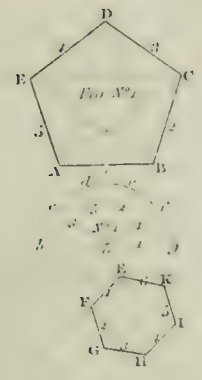

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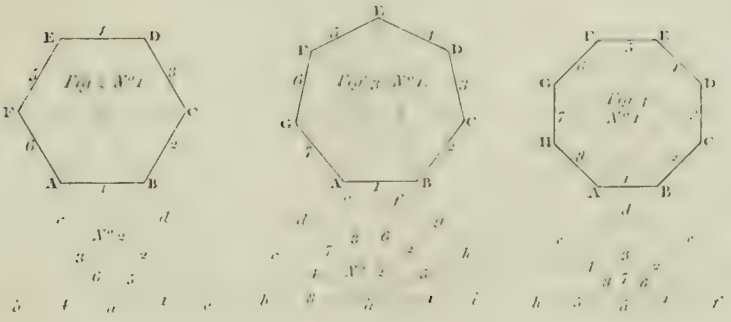

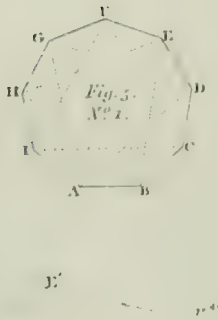

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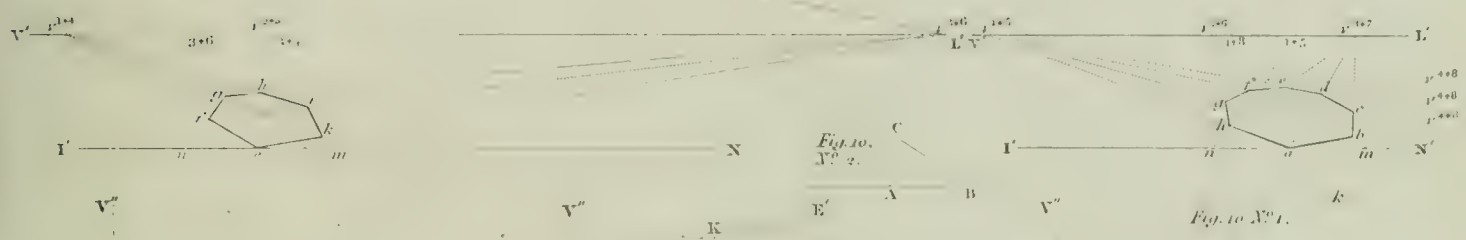

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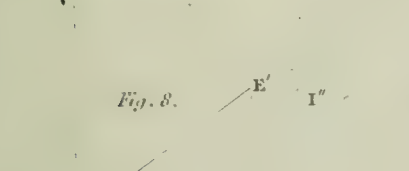
Fig. 10 N° 1.



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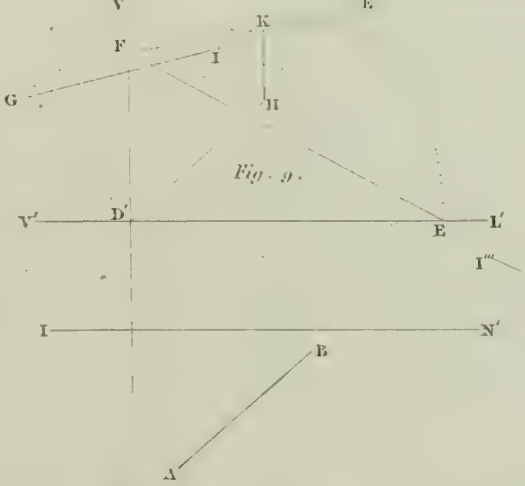

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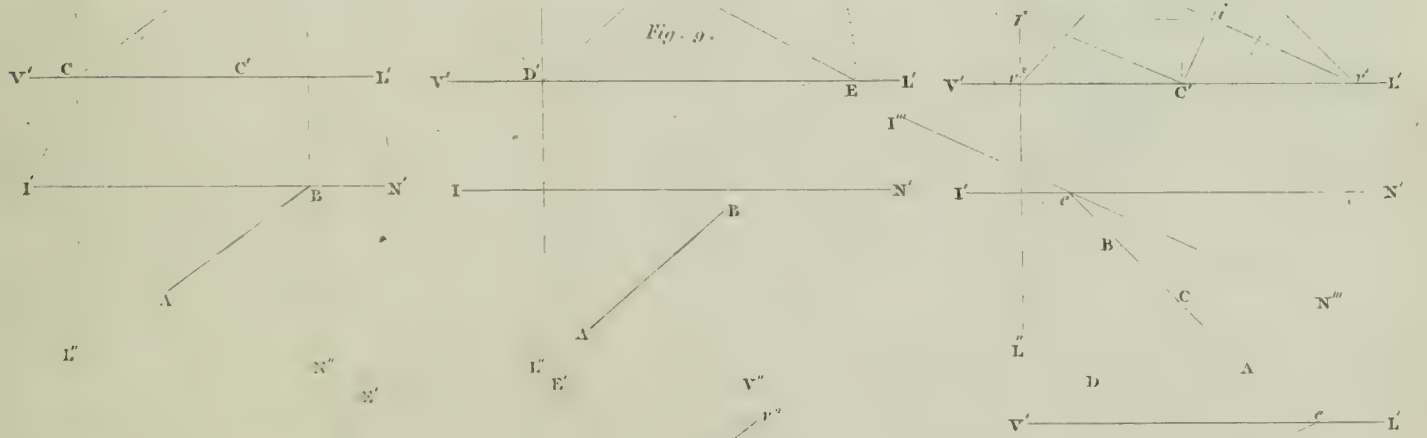

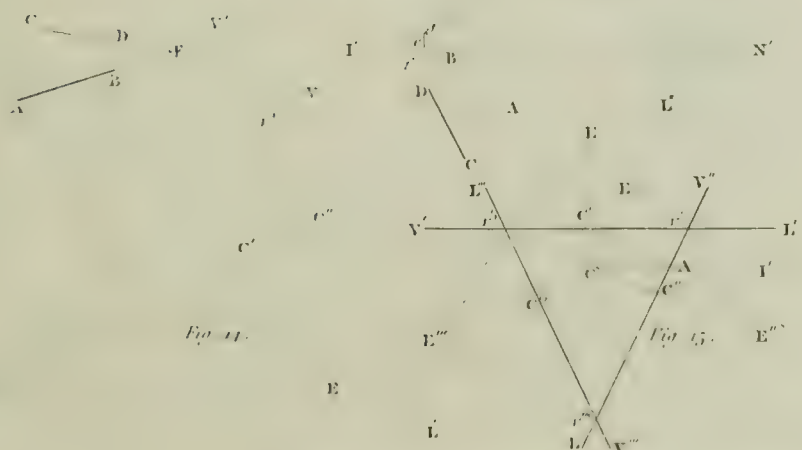

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 15.

Fig. 16.

Fig. 17.

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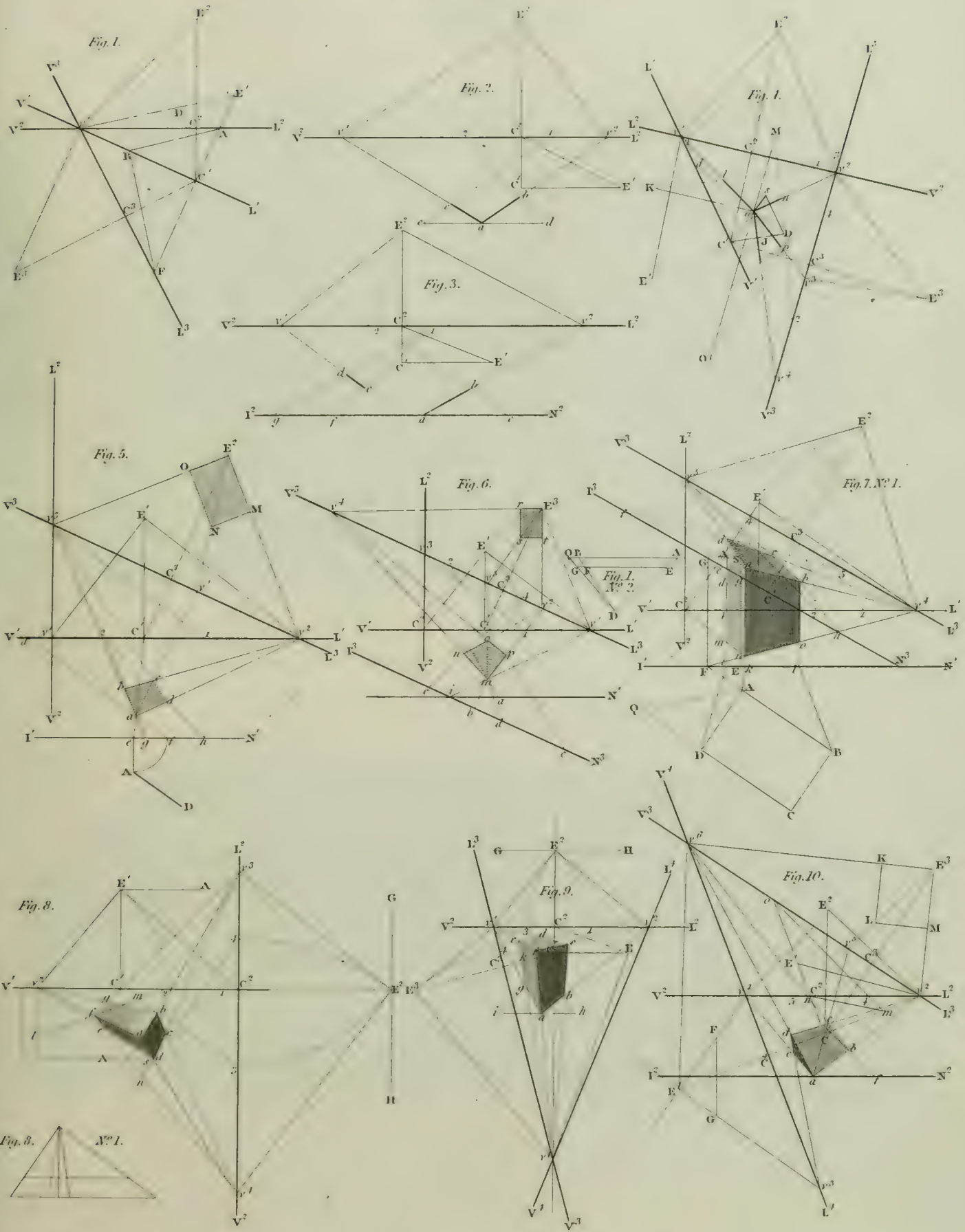
PERSPECTIVE.



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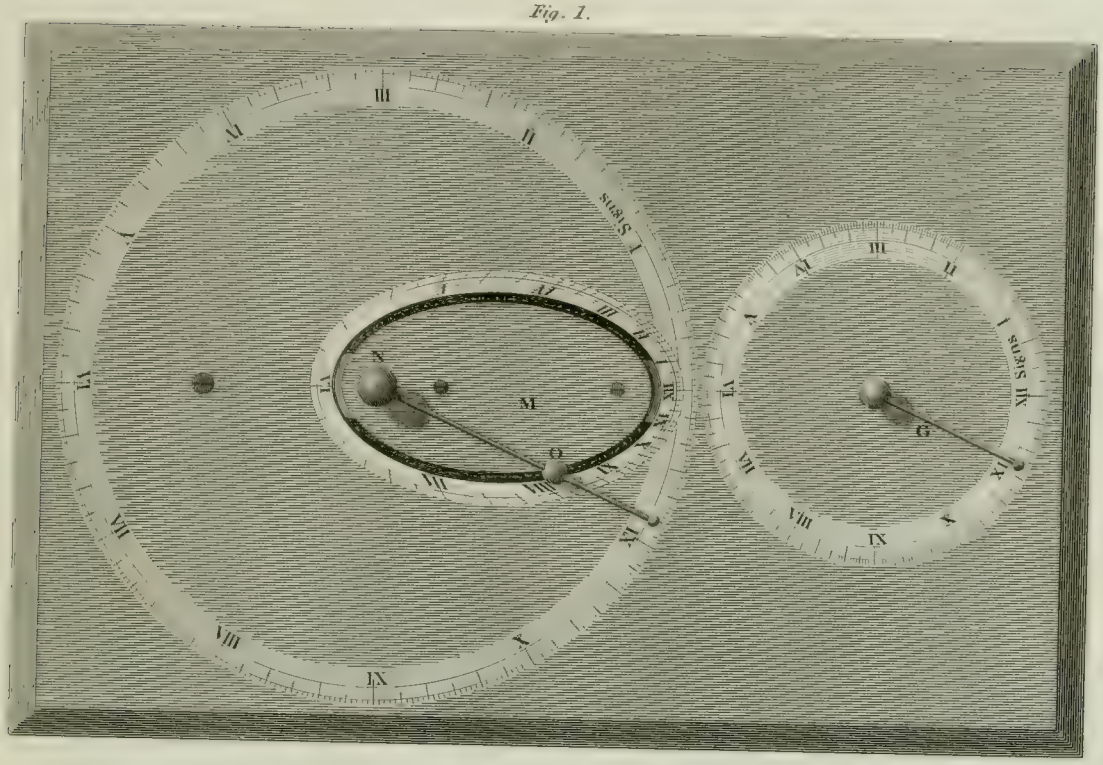
PLANETARY MACHINES.

COMETARIUM.

Fig. 1.



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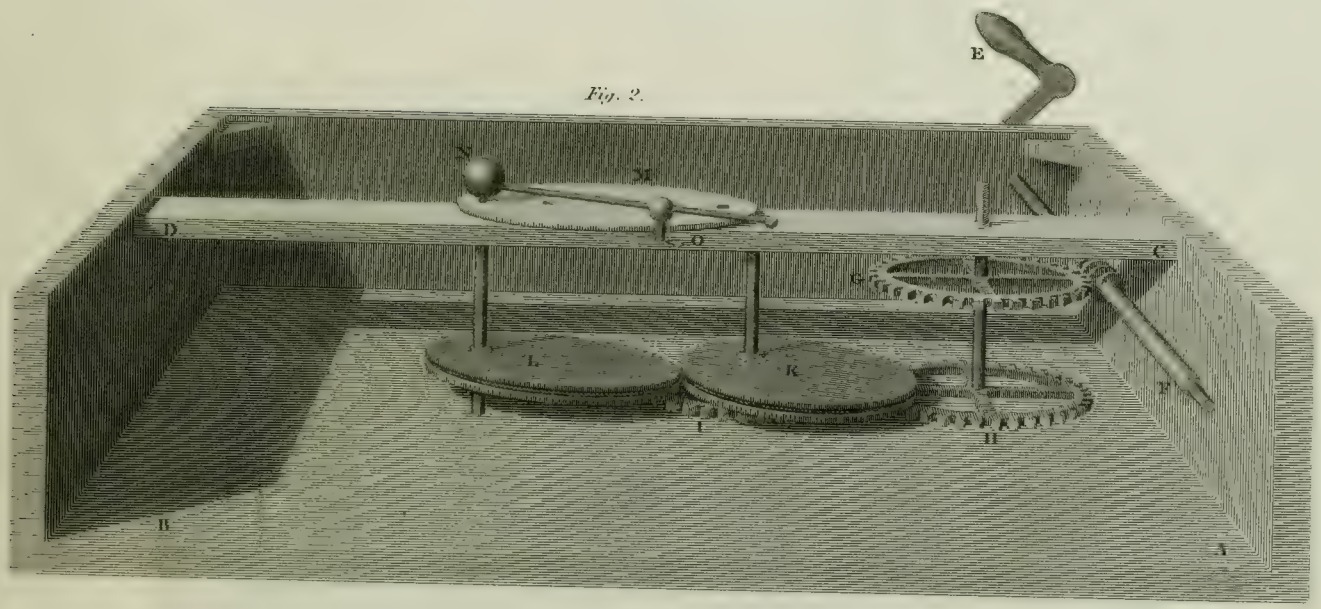

Harry Junr. delin.

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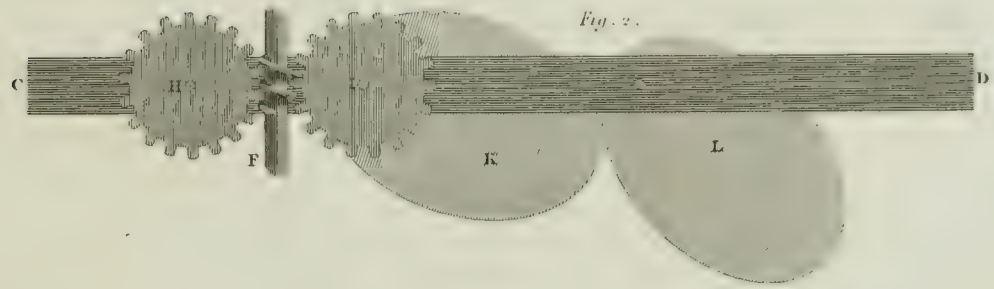
PLANETARY MACHINES.

COMETARIUM,

by W. Jones.

Fig. 2.



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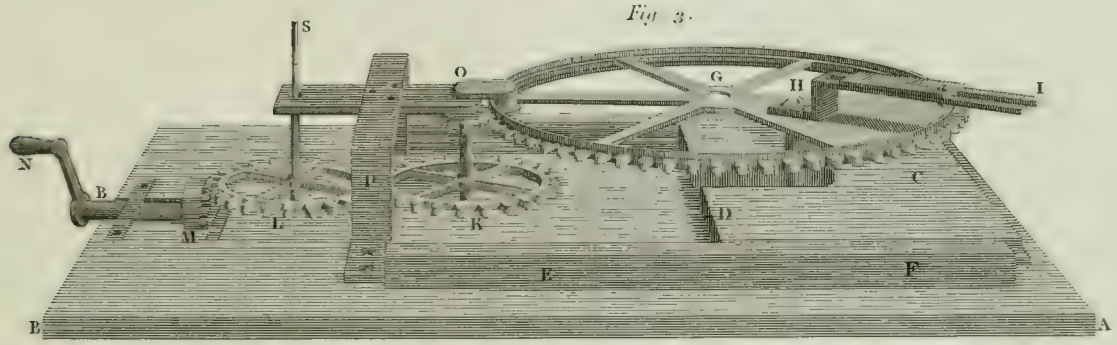

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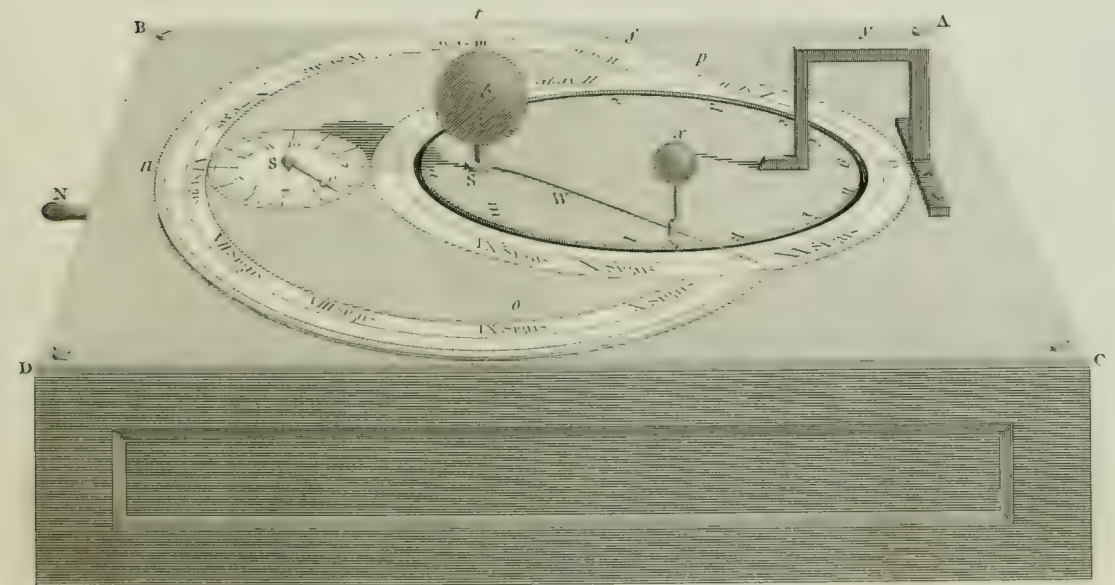


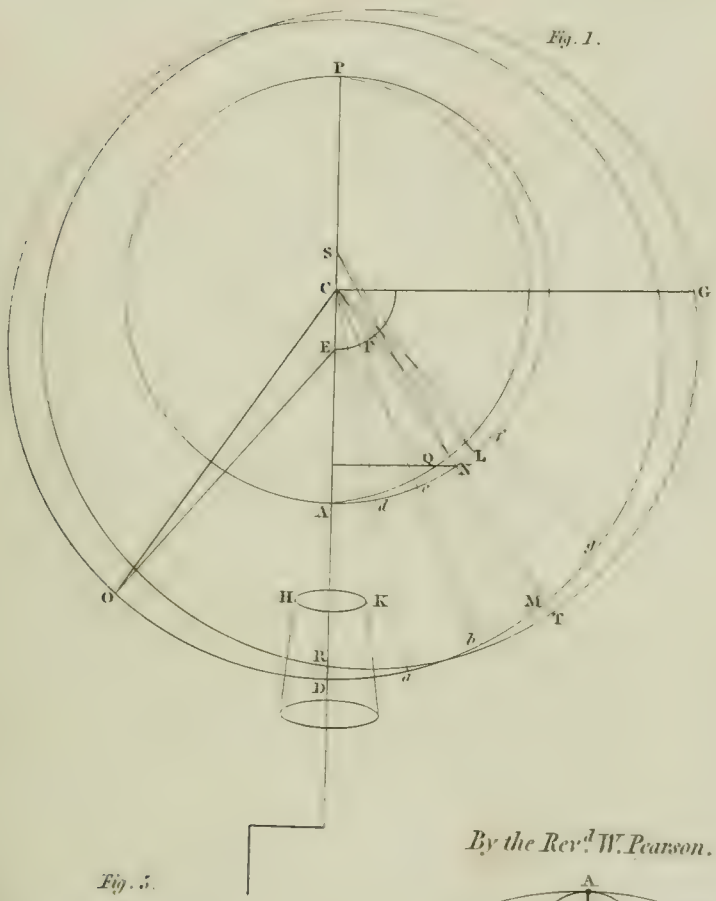
J. Farey delin. *Published as the Act directs, 1812, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.* *Engraved by W. Lowry.*

PLANETARY MACHINES.

EQUATION MECHANISM OF A PLANET'S ORBIT.

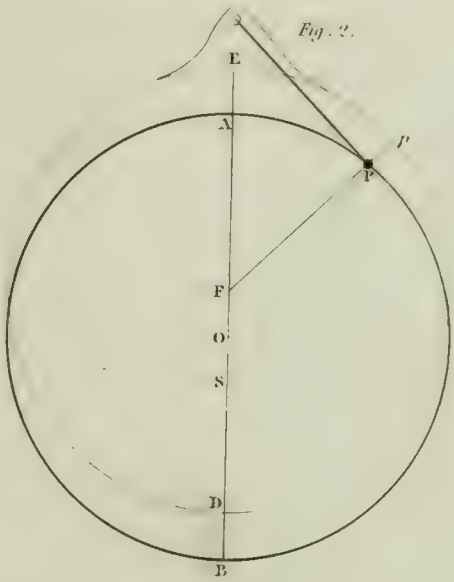
By M.r Huygens.

Fig. 1.



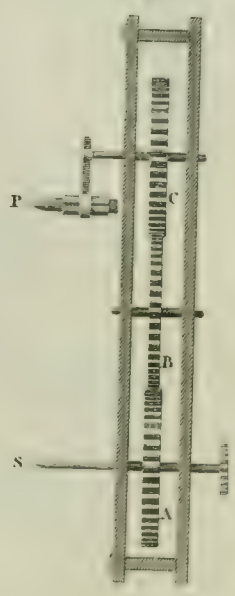
By M.r Jos. Priestley.

Fig. 2.



By the Rev.d W. Pearson.

Fig. 3.



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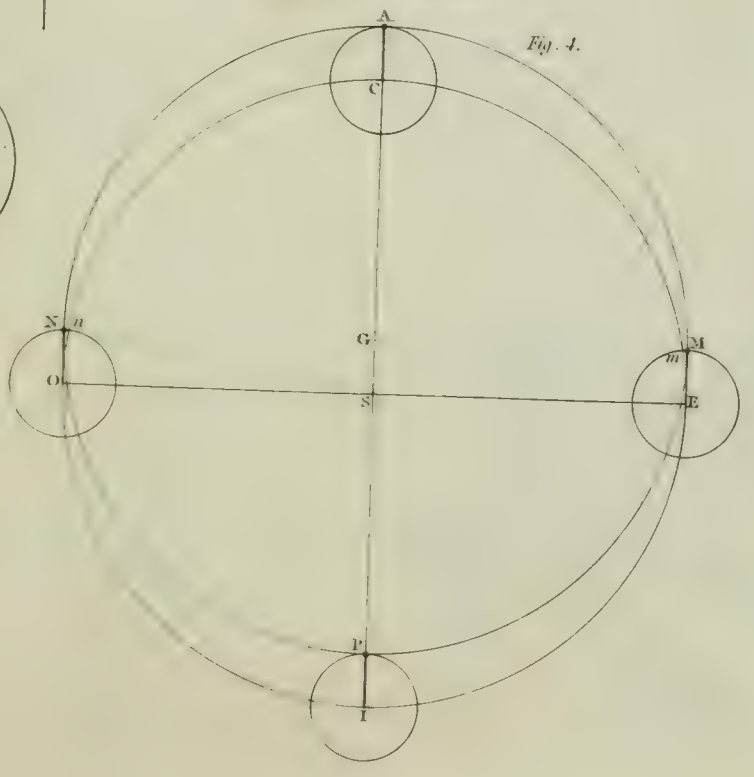

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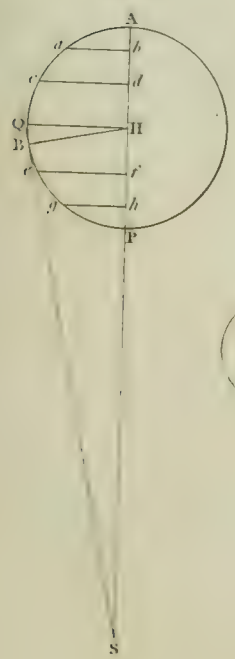

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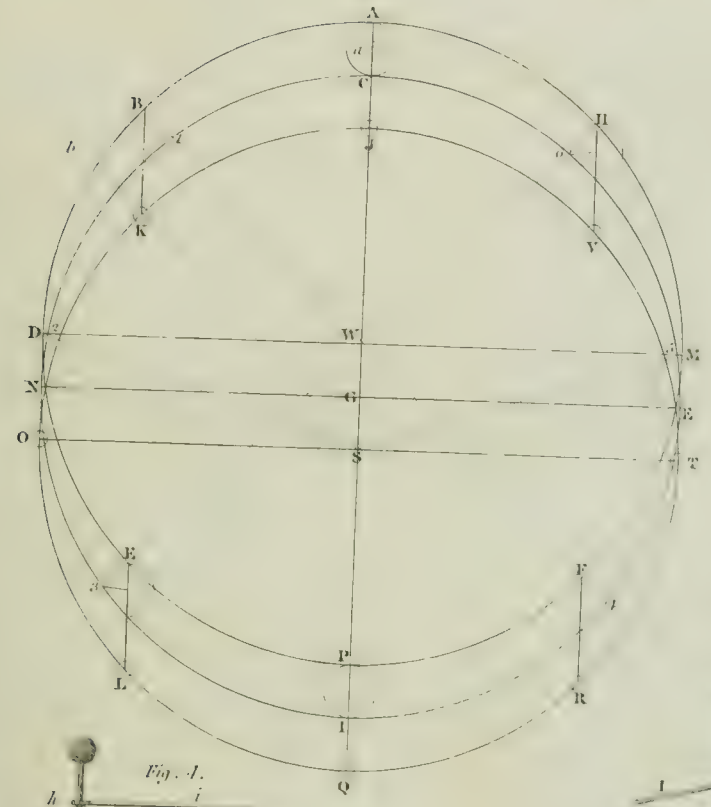
PLANETARY MACHINES.

EQUATION MECHANISM OF A PLANET'S ORBIT.

By the Rev.d W. Pearson.

Fig. 1.



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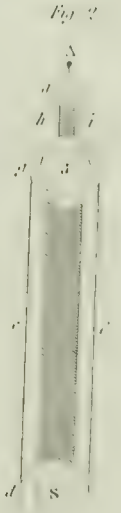

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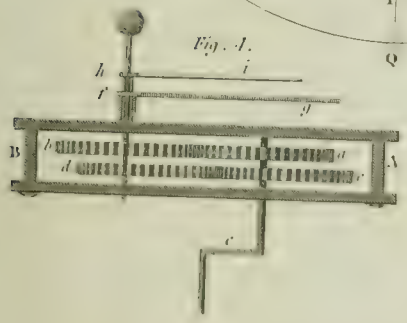

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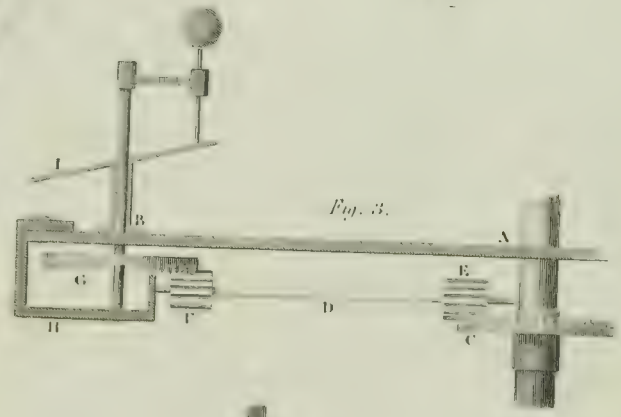

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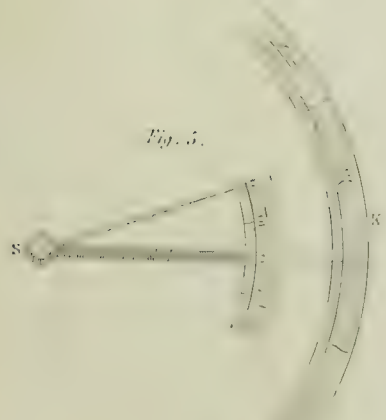

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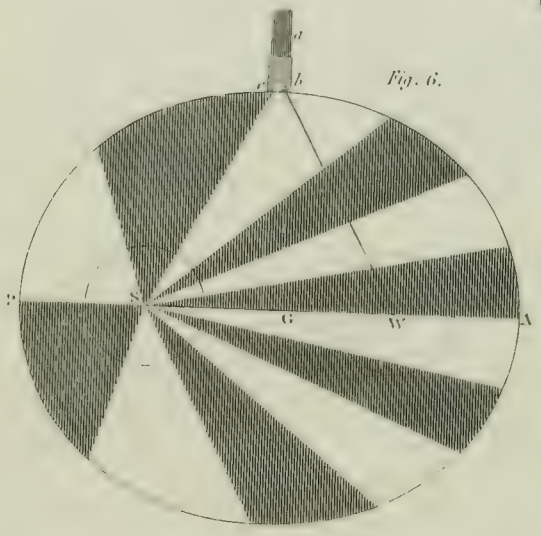

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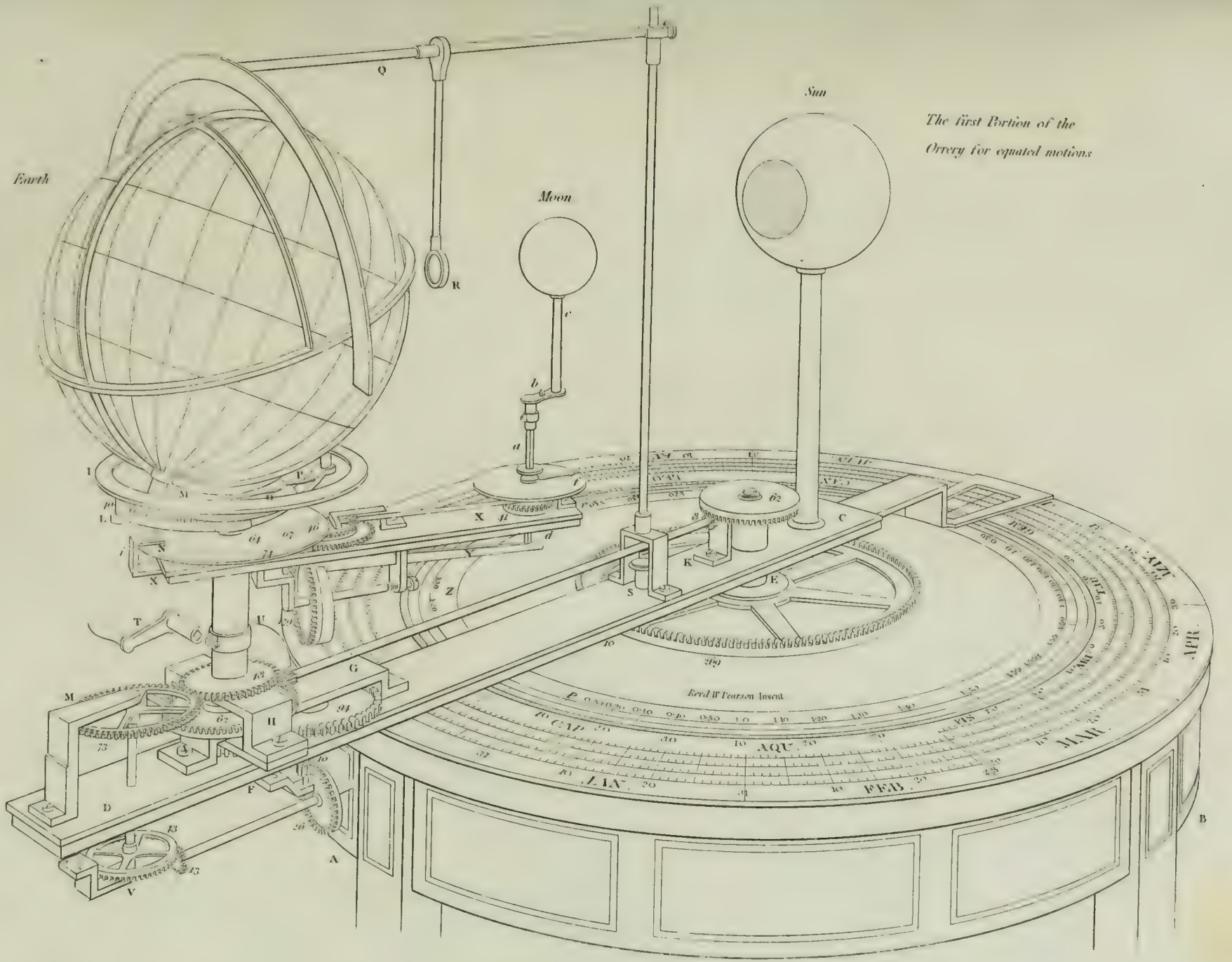
Earth
Moon
Sun
The first Portion of the
Orrery for equated motions
Q
R
c
b
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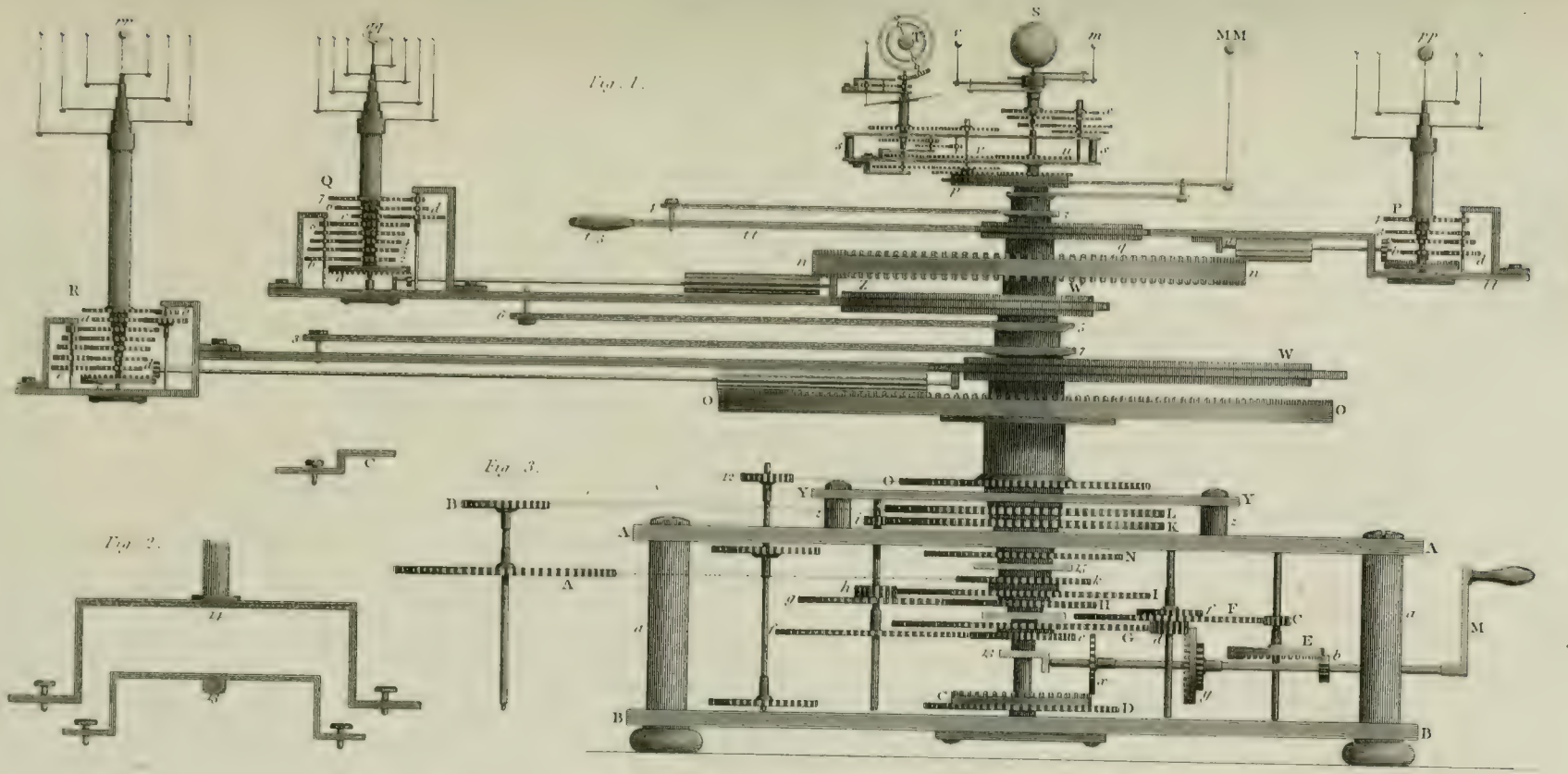
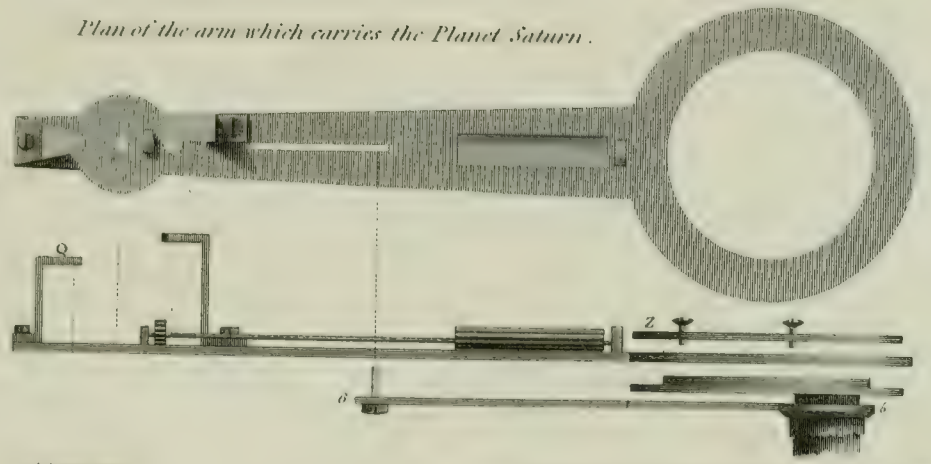
Revd W Pearson Invent
JAN.
FEB.
MAR.
APR.
AQU.
PIS.
CAP.

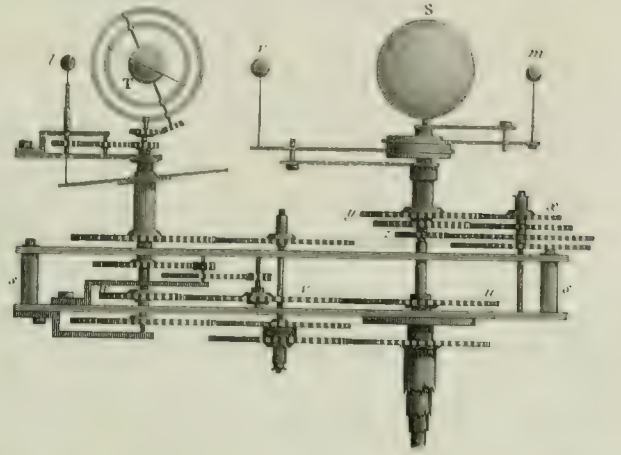
PLANETARY MACHINES

Janvier's Orrery.



Plan of the arm which carries the Planet Saturn.





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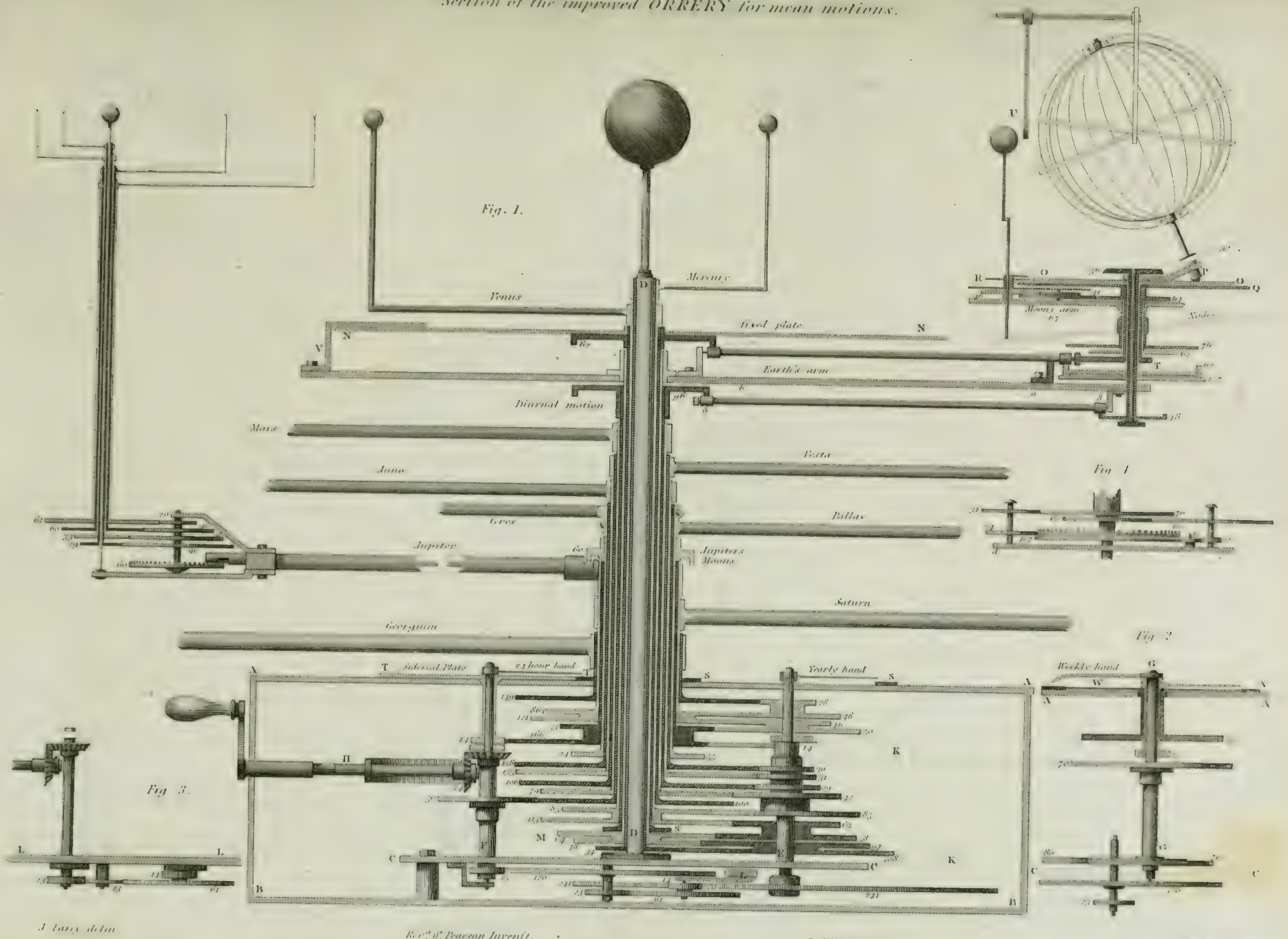
Lowry Sc.

PLANETARY MACHINES

Section of the improved ORRERY for mean motions.



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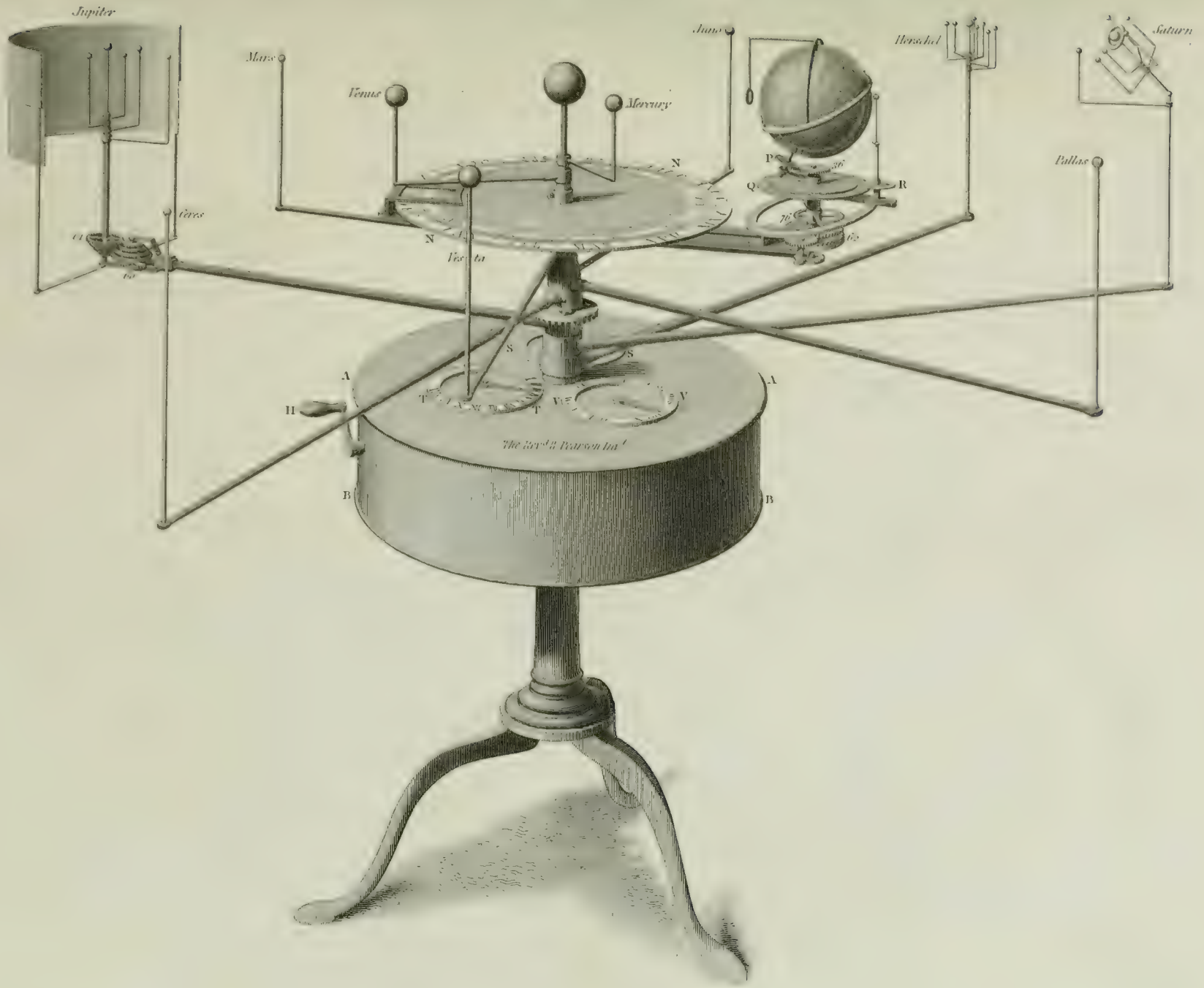
Perspective view of the improved ORRERY for mean motions.

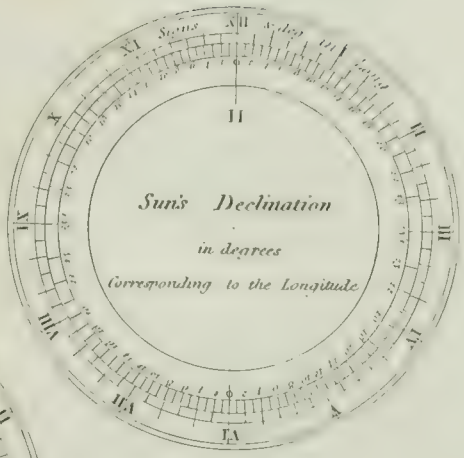


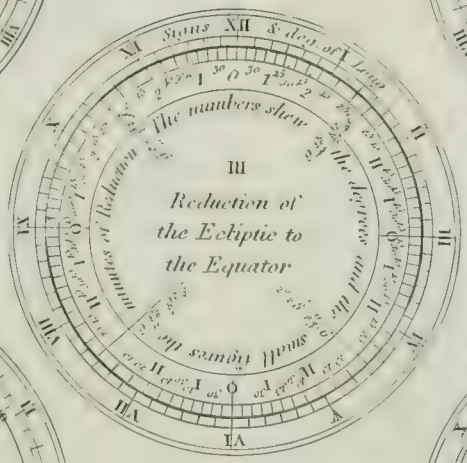
J. Farey Junr. del.

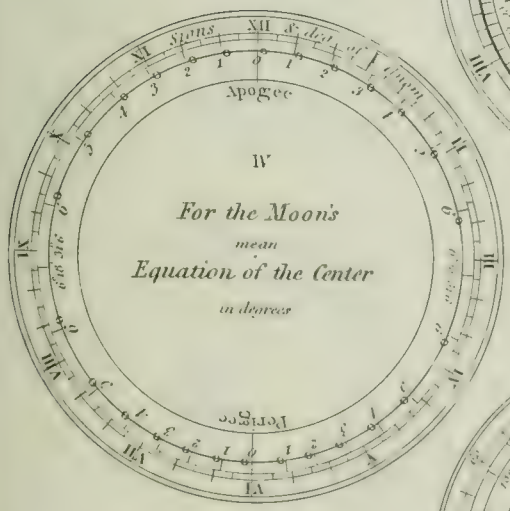
Published as the Act directs, 1819, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

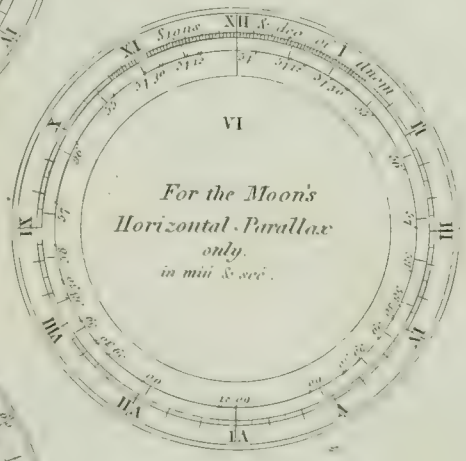
Dials graduated for shewing different planetary Phenomena

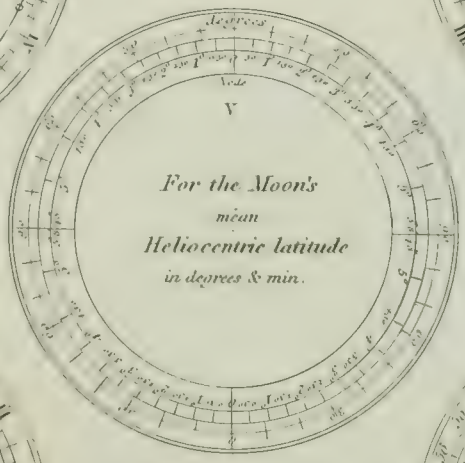
[see Orrery]

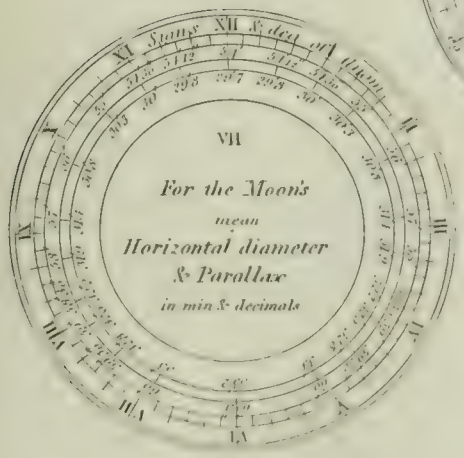












J. Lowry delin. Published as the Act directs 1st Jan. 1810 by Longman Hurst Rees Orme & Brown, Paternoster Row. Lowry Sc.

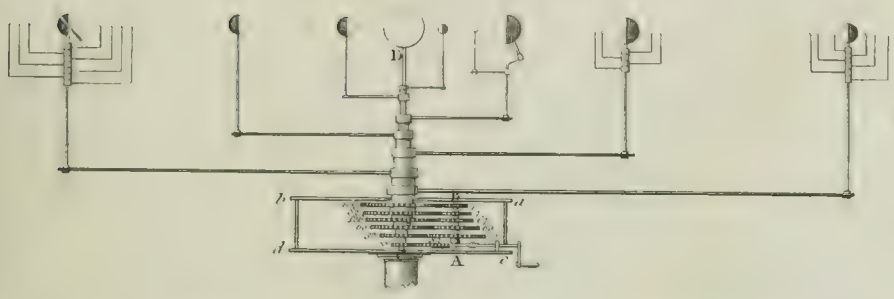
PLANETARY MACHINES.

PLANETARIUM

of the Royal Institution by Mr. Pearson.

Common PLANETARIUM.

Fig. 1.



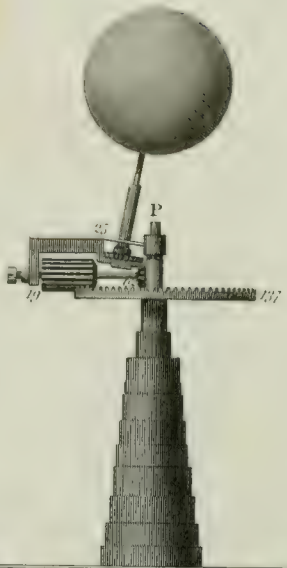


Fig. 1.

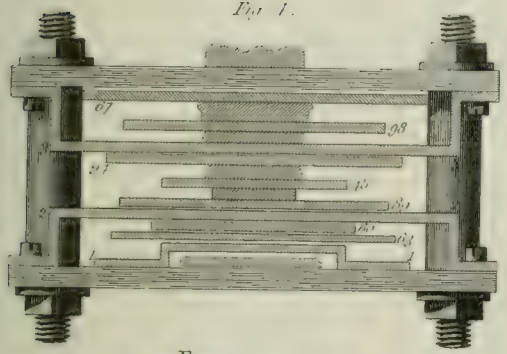


Fig. 3.

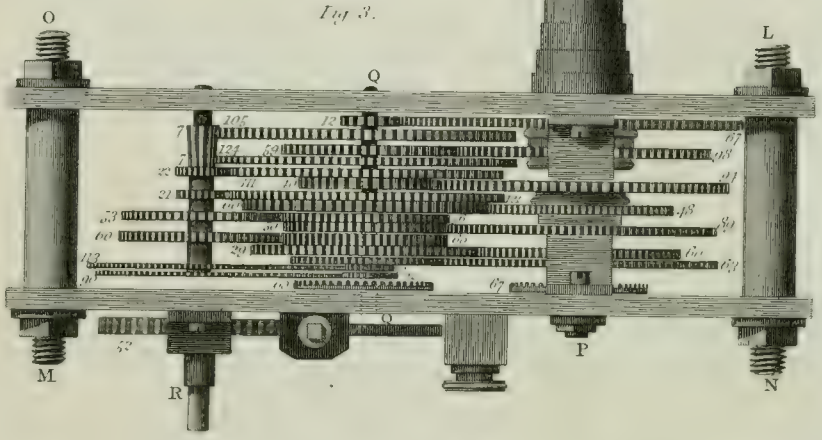
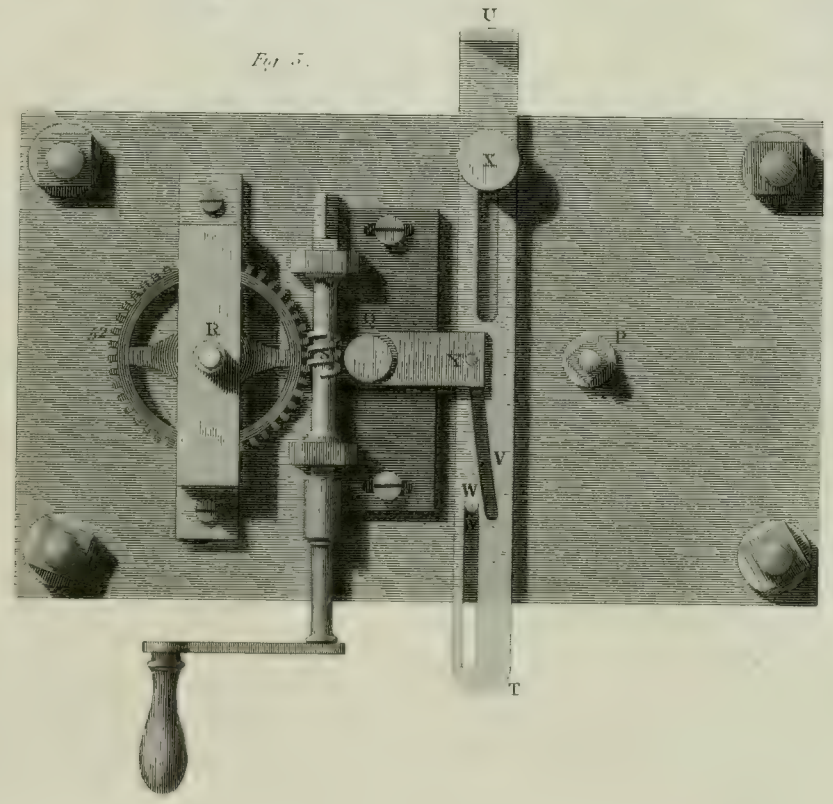


Fig. 2.

Fig. 5.



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Lowry Sc.

The new PLANETARIUM for equated motions by D. Pearson.

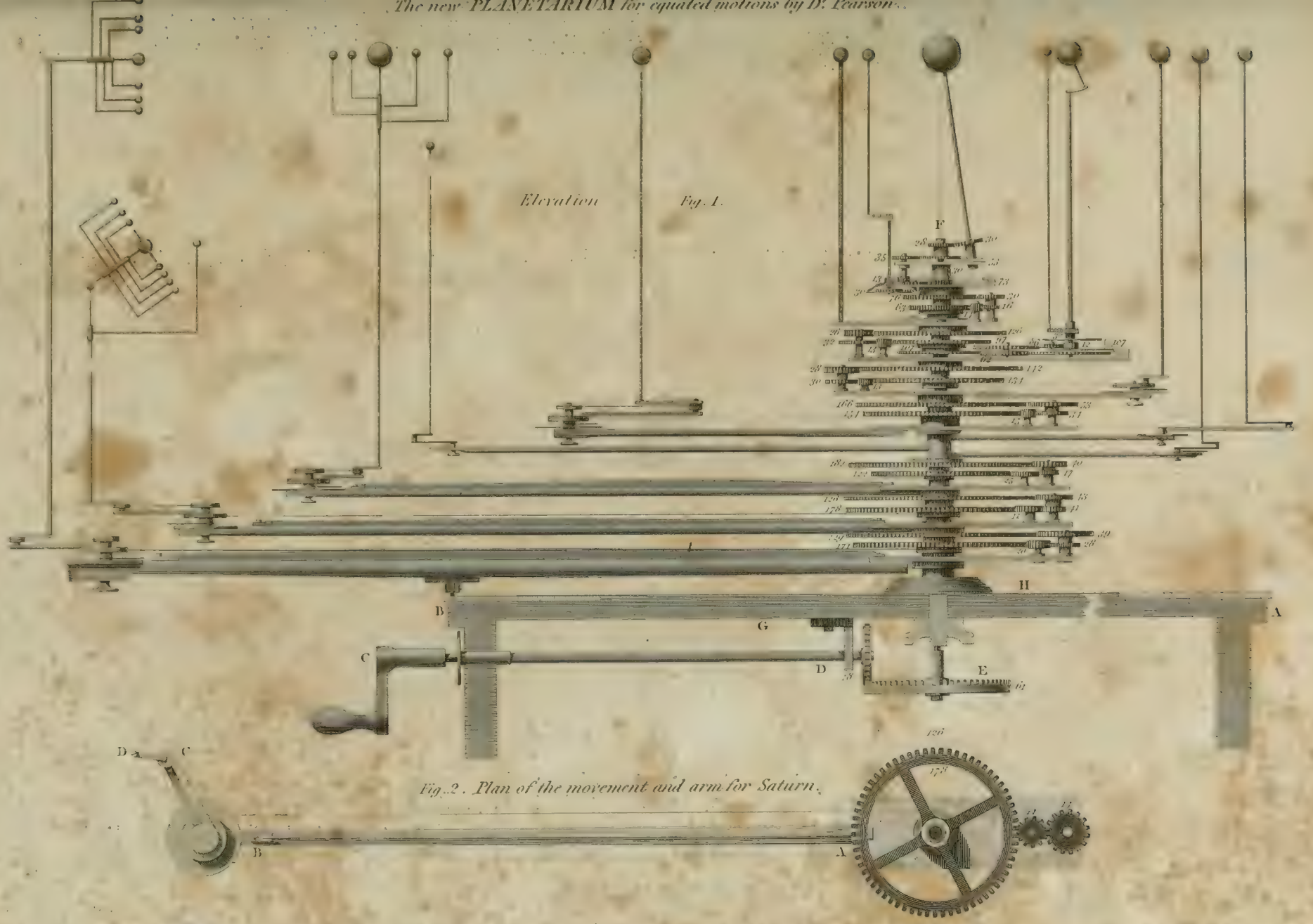

Fig. 2. Plan of the movement and arm for Saturn.

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Lowry Sc.

SATELLITE MACHINES.

Fig. 3.

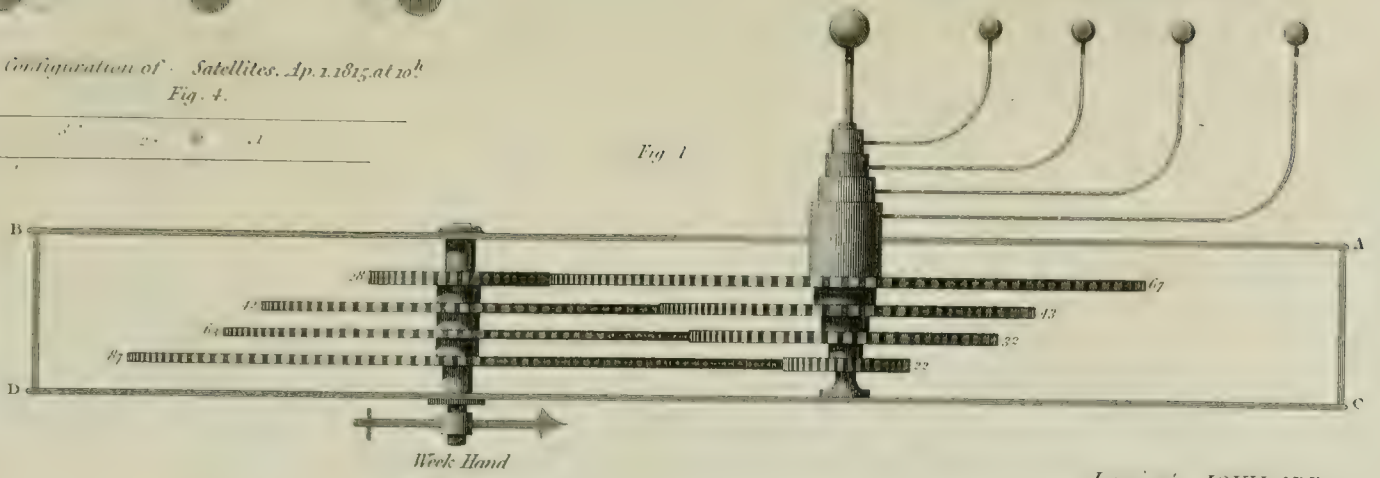
Configuration of Satellites. Ap. 1. 1815. at 10h

Fig. 4.

4 3 2 1

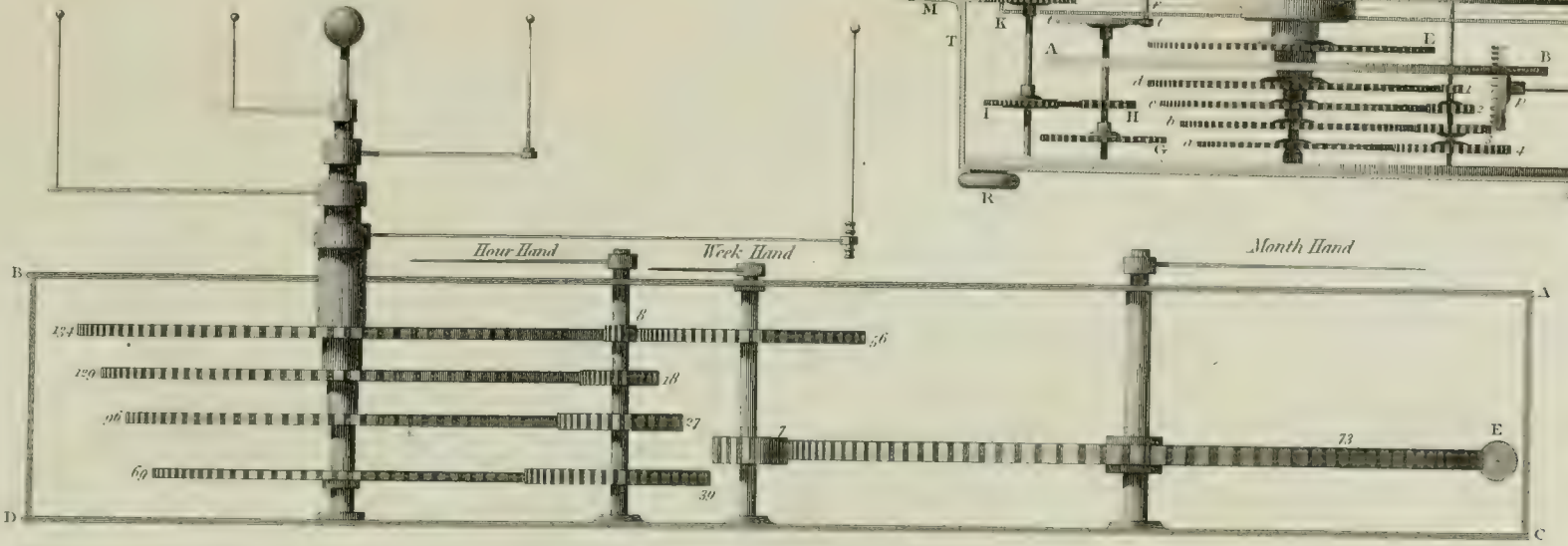
SATELLITE Machine by Roemer.

Fig. 1



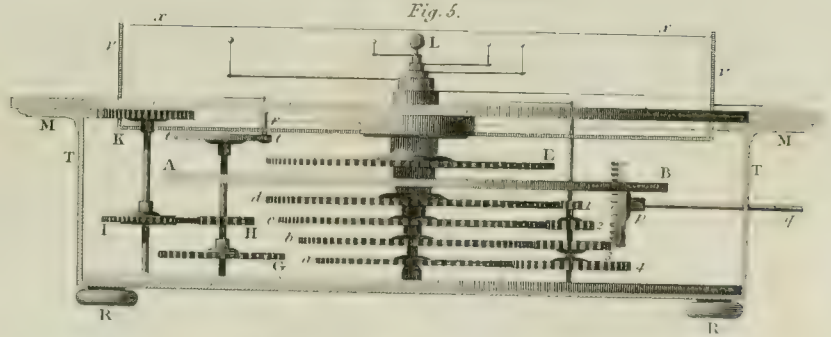
SATELLITIAN by The Revd Wm Pearson.

Fig. 2.



Jauvier's JOUILABE.

Fig. 5.



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Lowry.

Rev.d W Pearson's

large Machine

for Jupiter's Satellites

Fig 1

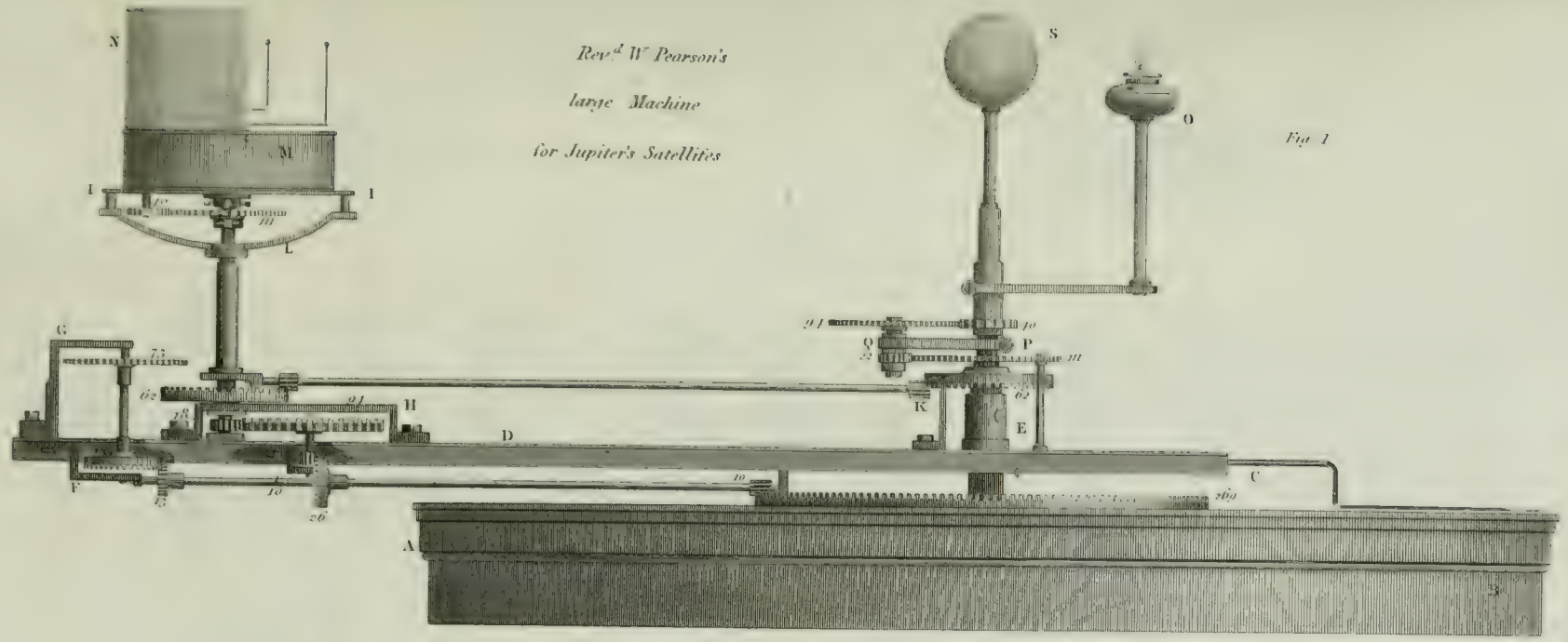


Fig 2.

Wheelwork in the box

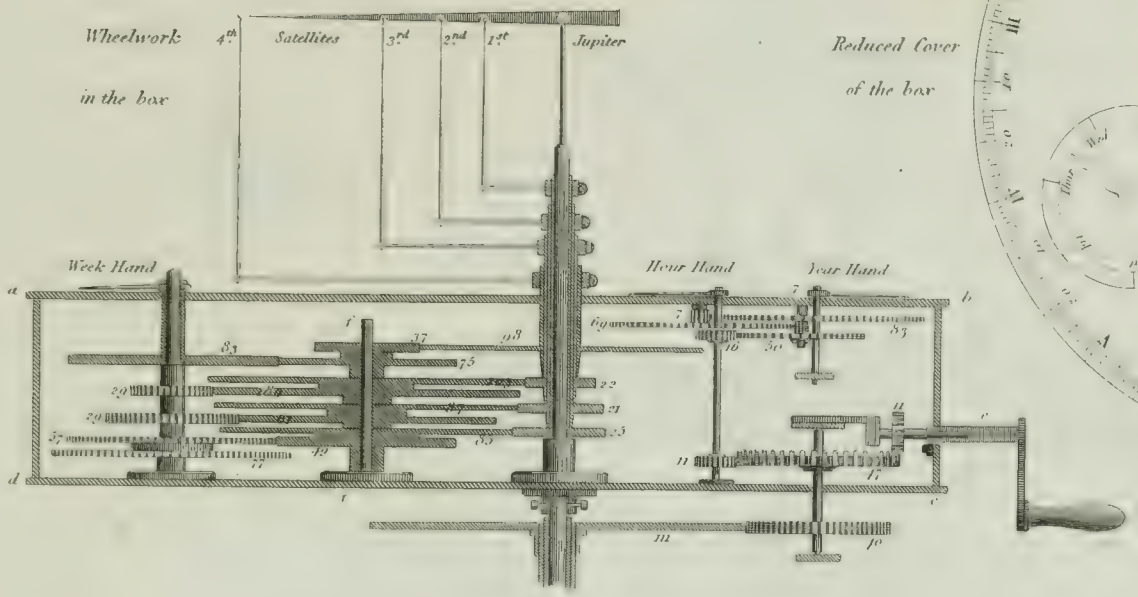
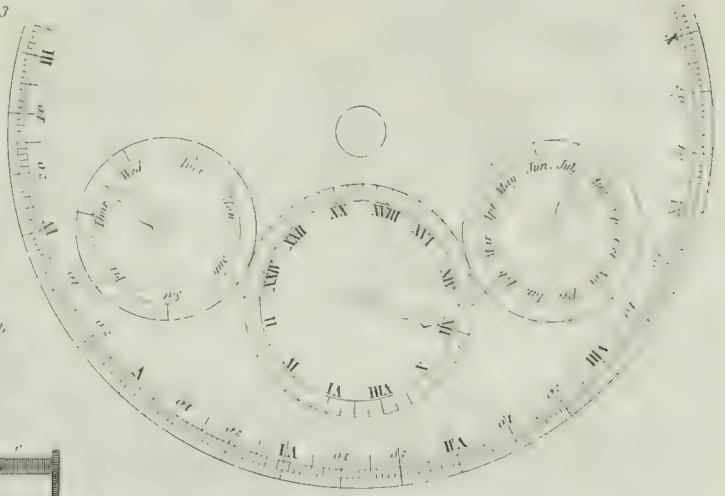


Fig 3

Reduced Cover of the box



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Mr. Bramah's Planing Machine.

Fig. 7.

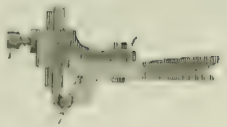


Fig. 6.

Plan.

Fig. 1.

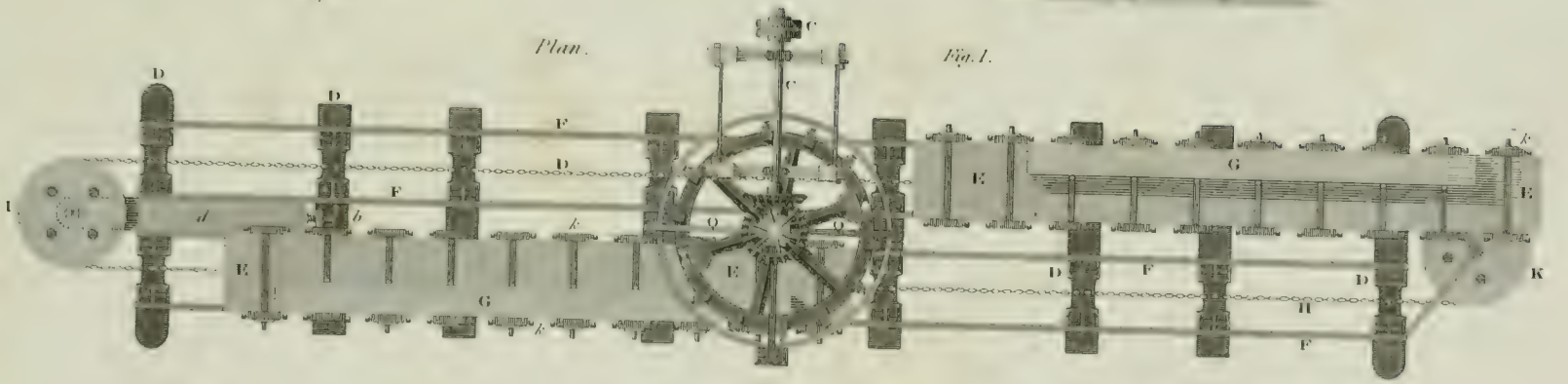


Fig. 4.

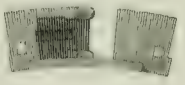
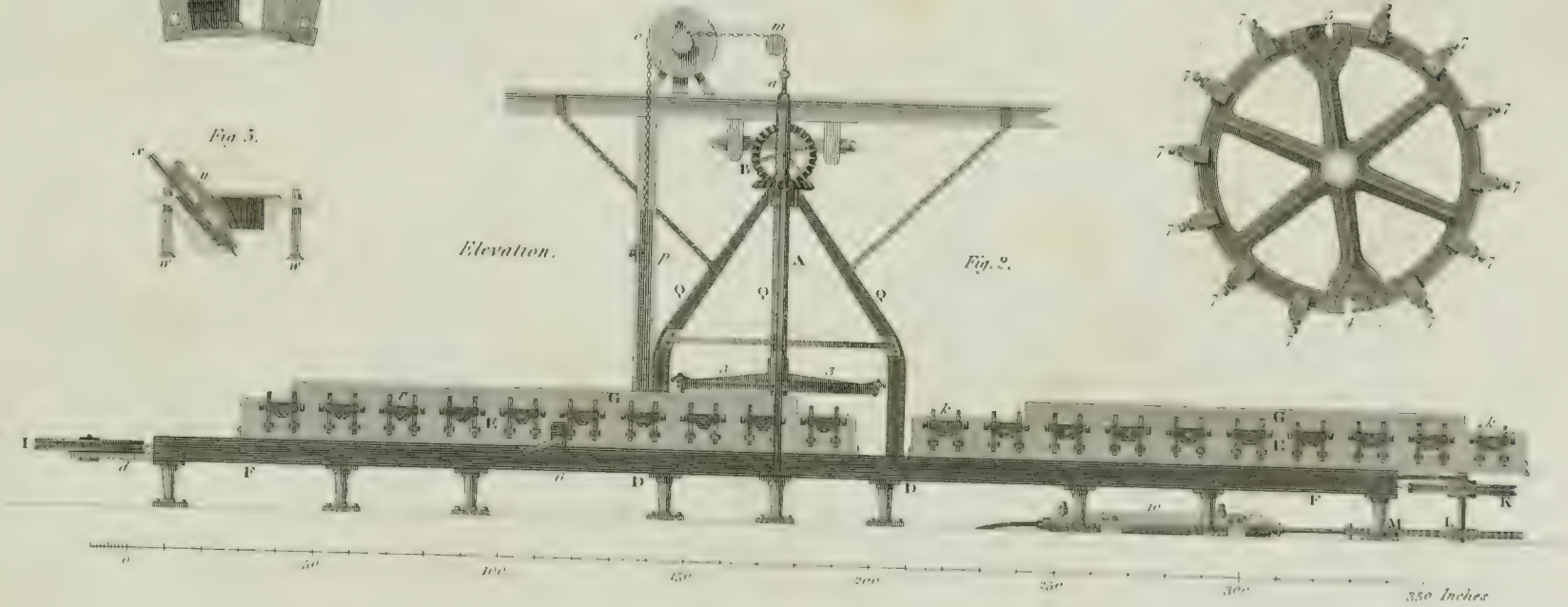


Fig. 5.

Fig. 3.

Elevation.

Fig. 2.



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W. Lowry sc.

Cross Section.
Fig. 9.

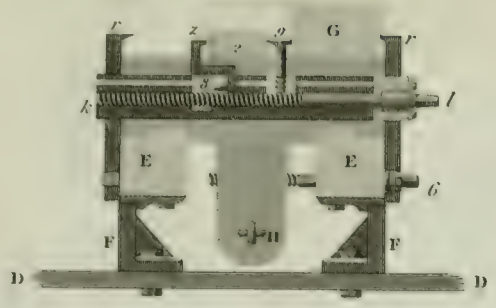
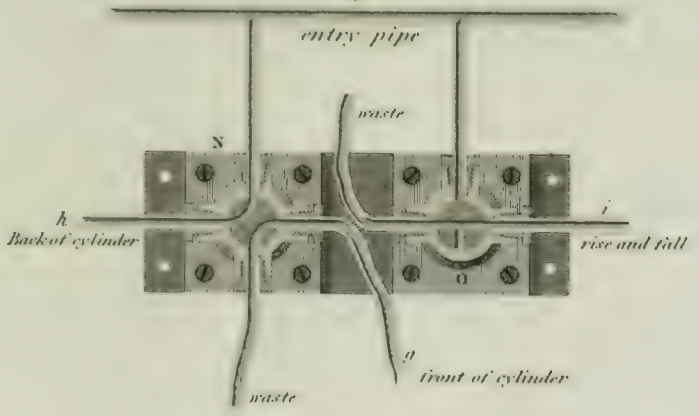
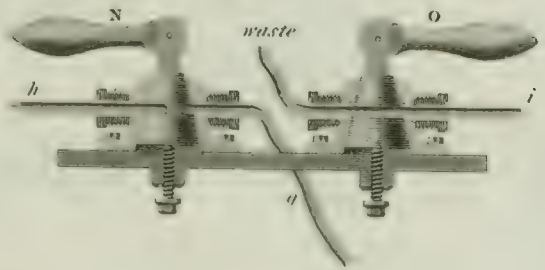


Fig. 12.



Cocks.
Fig. 11.



Cylinder
Fig. 10.

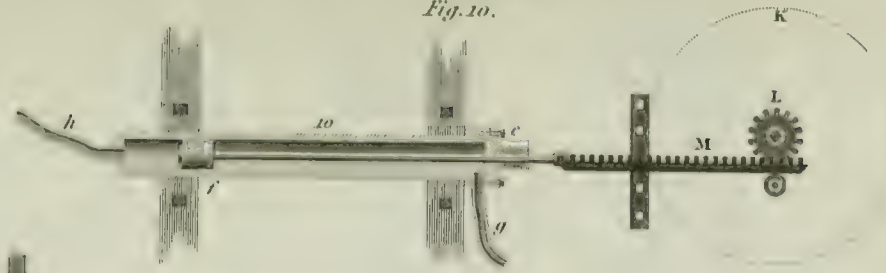
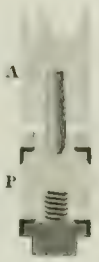
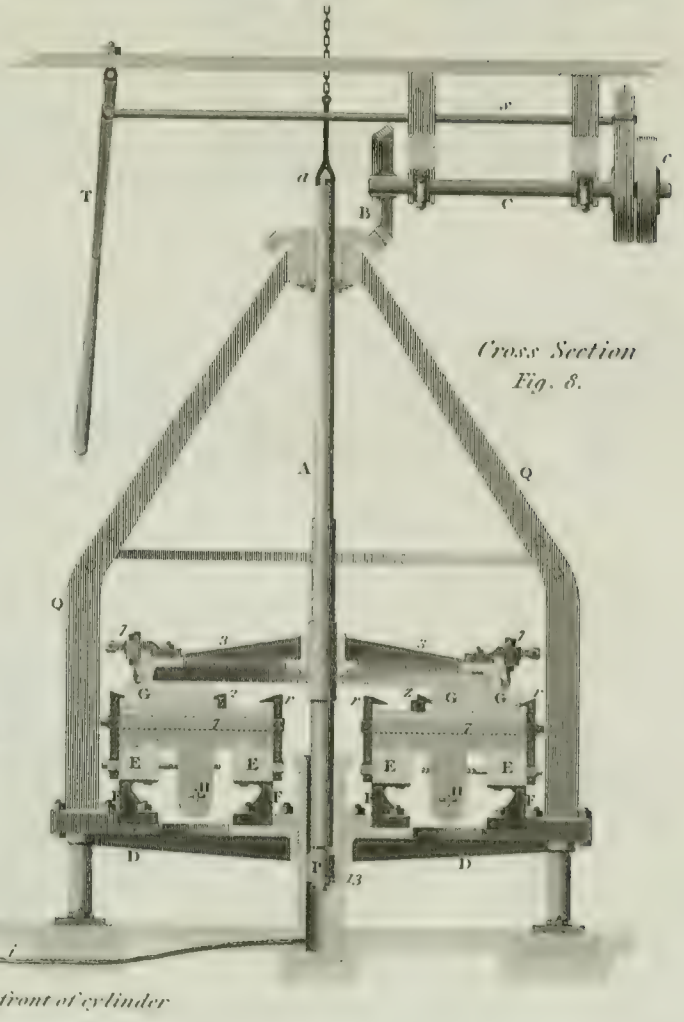


Fig. 13.



Cross Section
Fig. 8.



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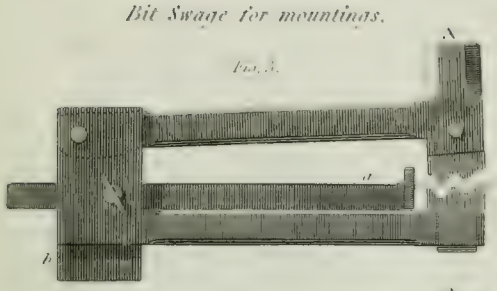
PLATED MANUFACTURE.

Bit Swage for mountings.

Fig. 3.



Common Swage.

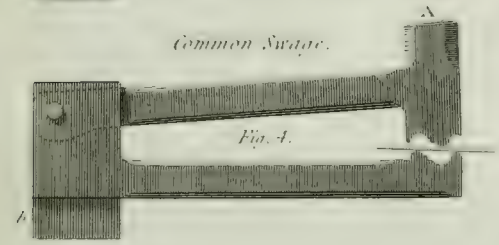
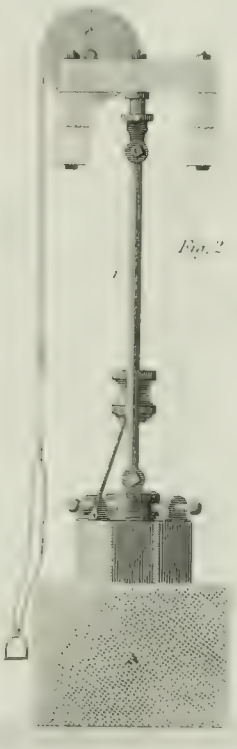


Fig. 2.



Die Stamp.

Fig. 1.

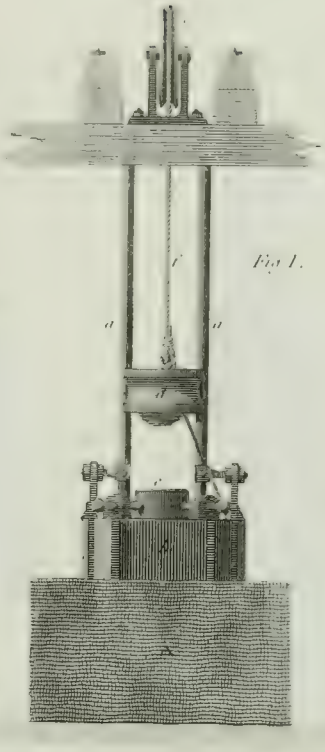


Fig. 6.

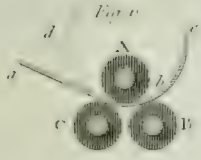
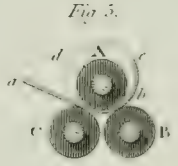


Fig. 5.



Embossing Punches.

Fig. 11.

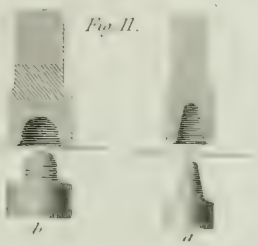
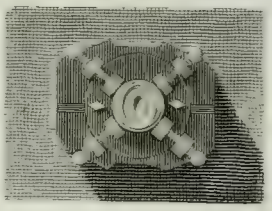
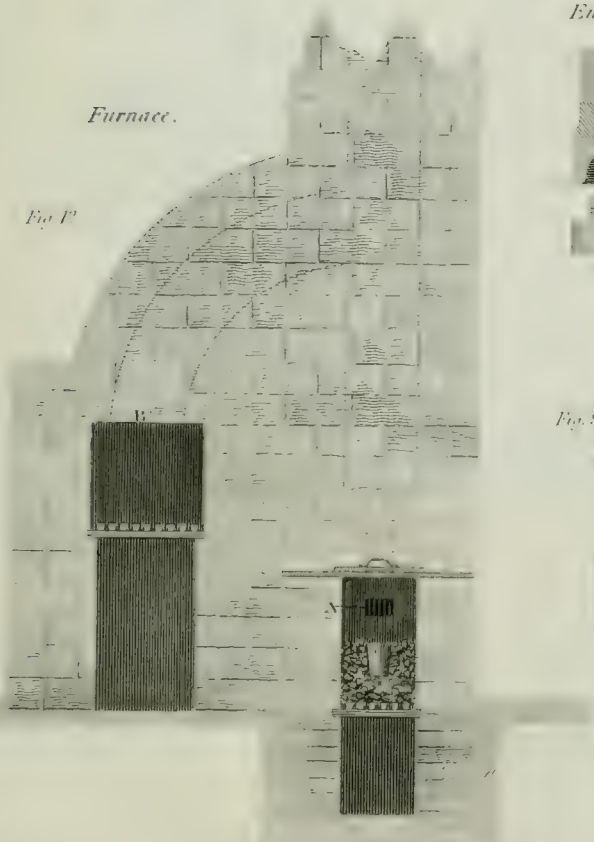


Fig. 7.



Furnace.

Fig. 1°



Grooved Rollers for beads &c.

Fig. 9.

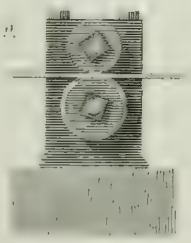
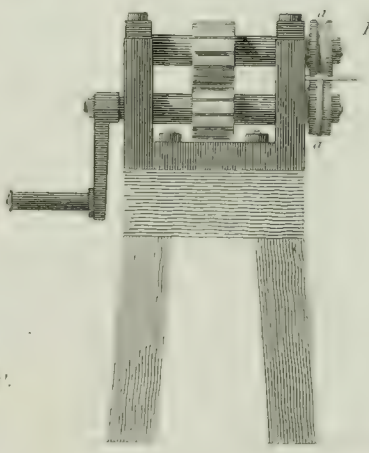


Fig. 10.

Fig. 8.



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PNEUMATICS.

AEROSTATION

ÆOLIPILE

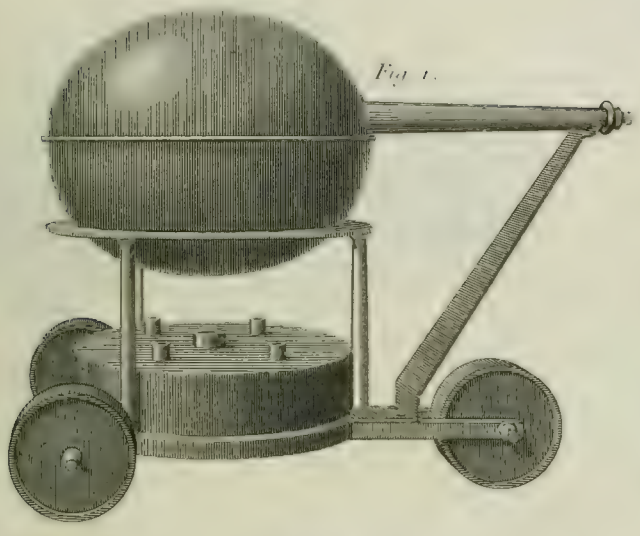


Fig. 1.

Fig. 3

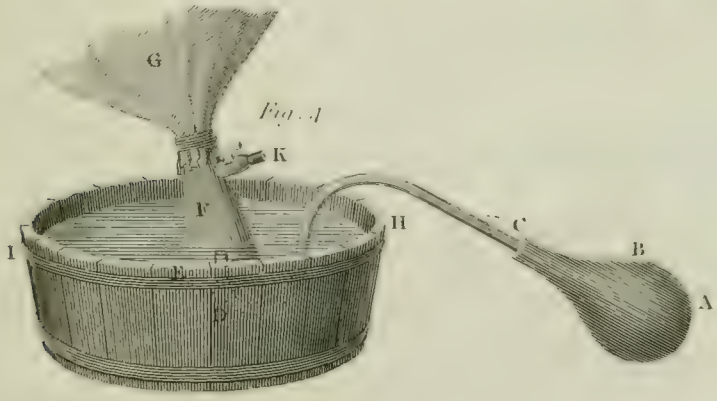


Fig. 4

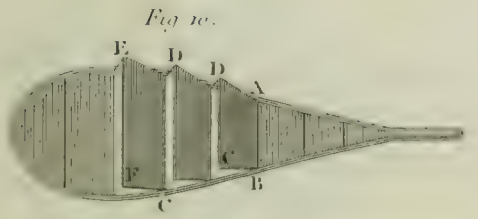


Fig. 10.

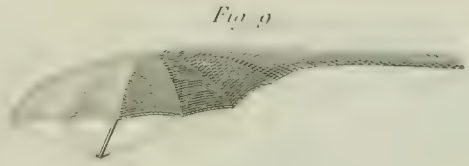


Fig. 9

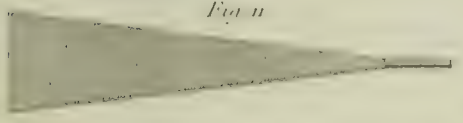


Fig. 11

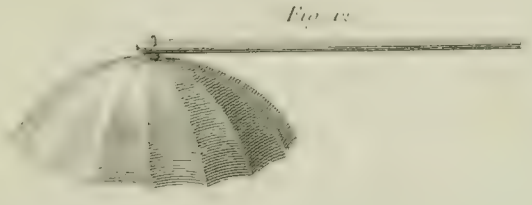


Fig. 12

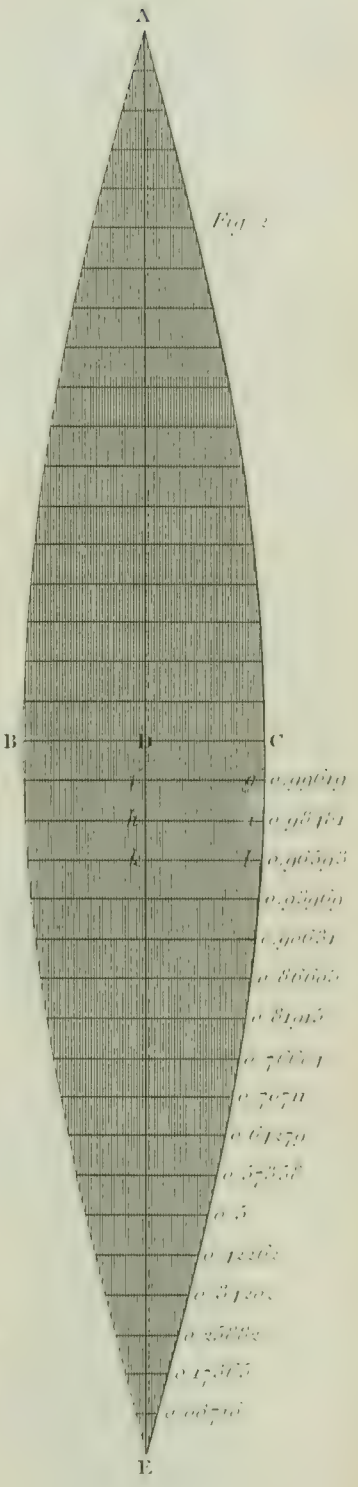


Fig. 2

PNEUMATICS.

AEROSTATION.

Fig. 8.

Fig. 6.

Fig. 7.

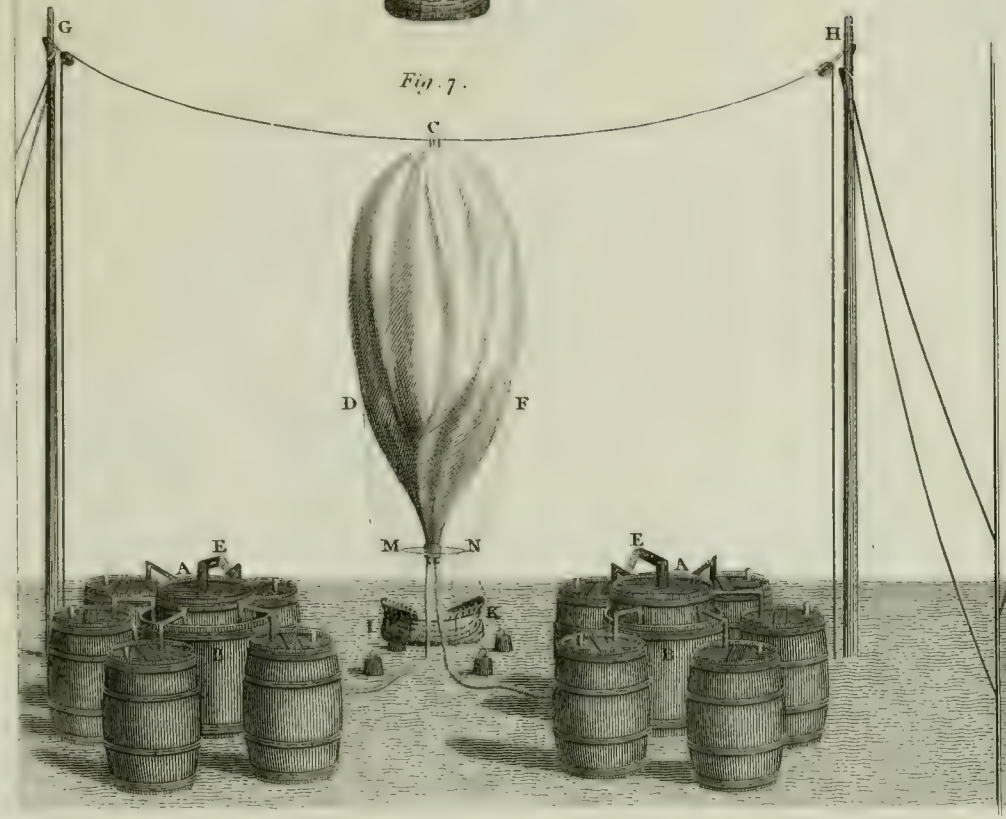
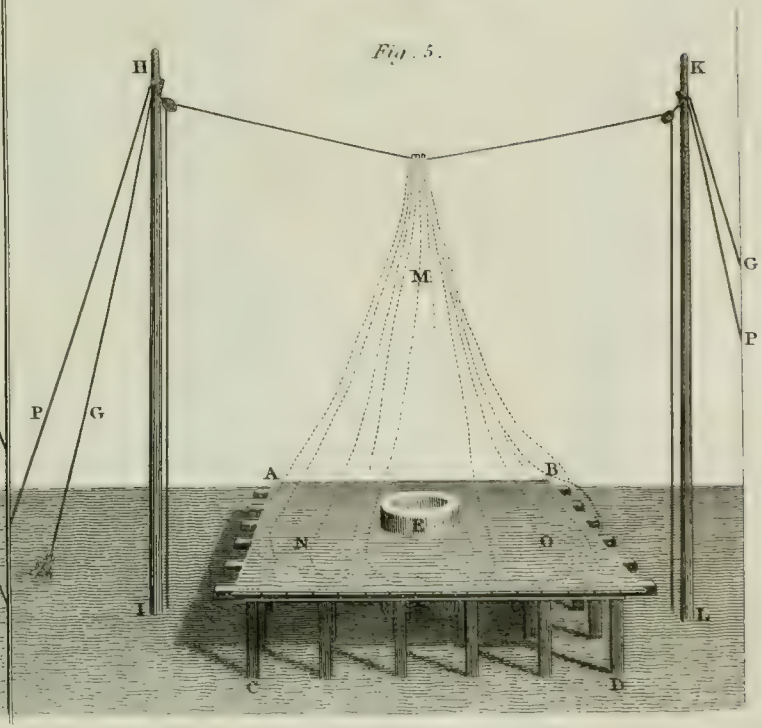


Fig. 5.



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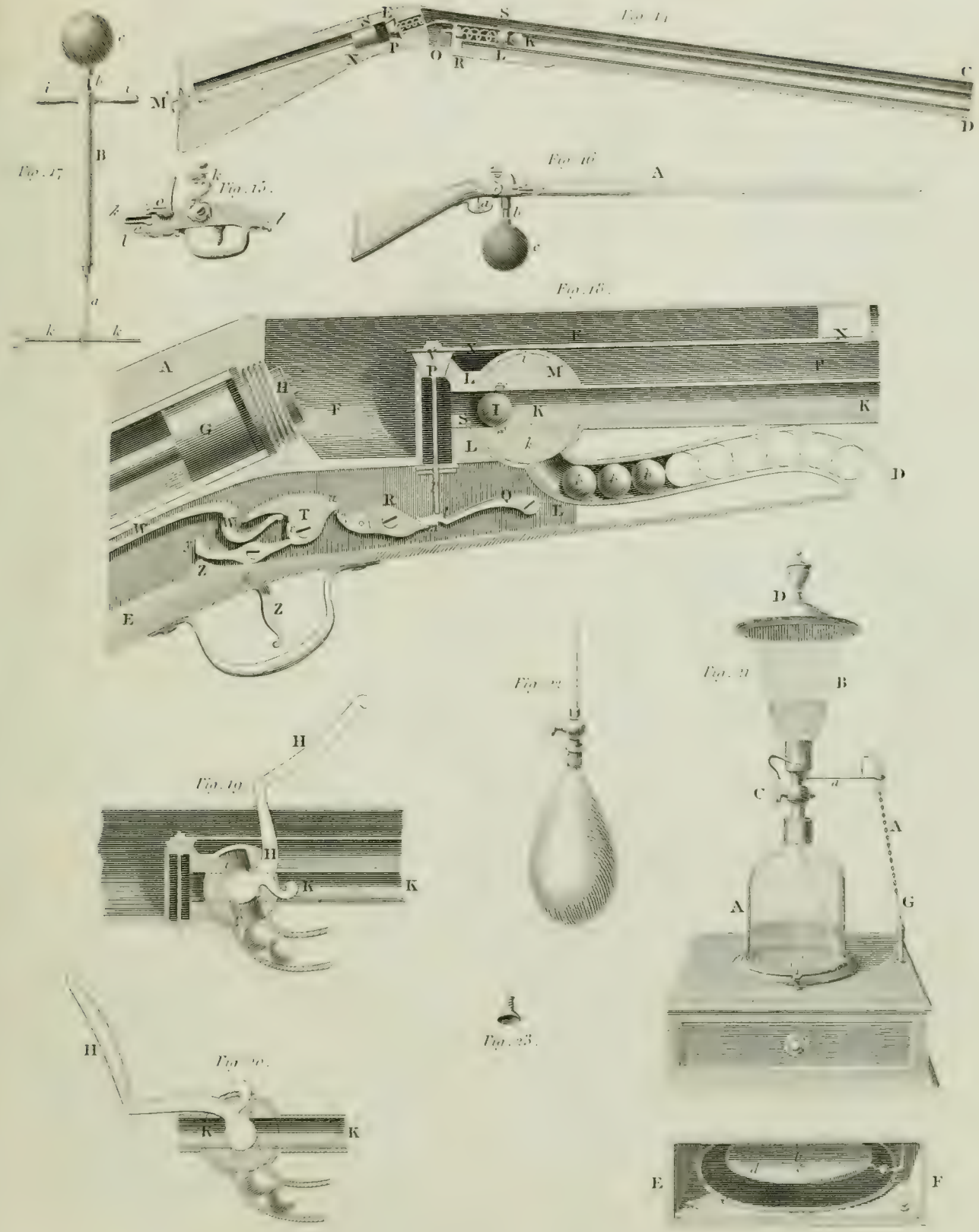

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AIR-Pump and Experiments on AIR.

Fig. 24.

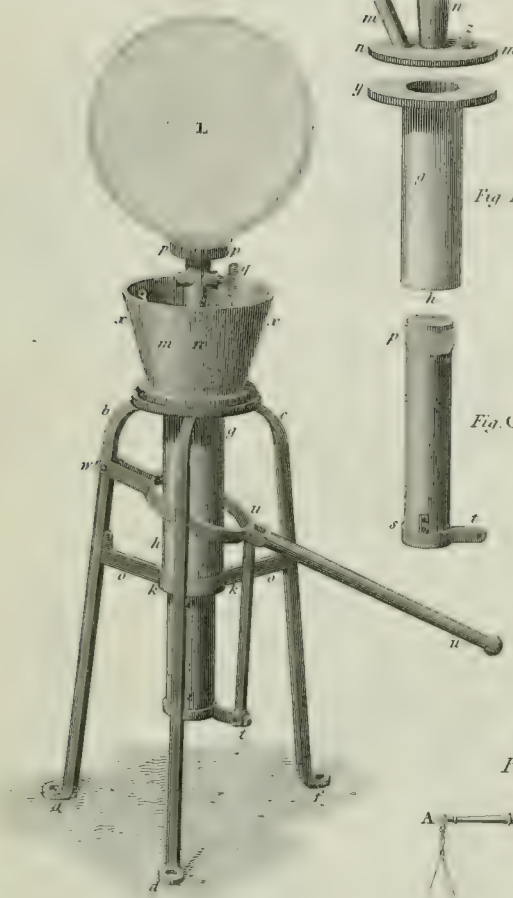

Fig. B.

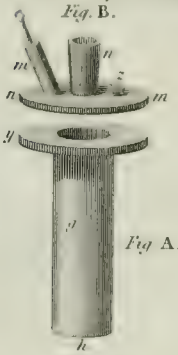

Fig A.

Fig. C.

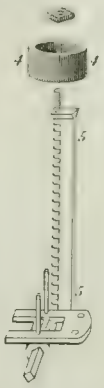

Fig. 25.

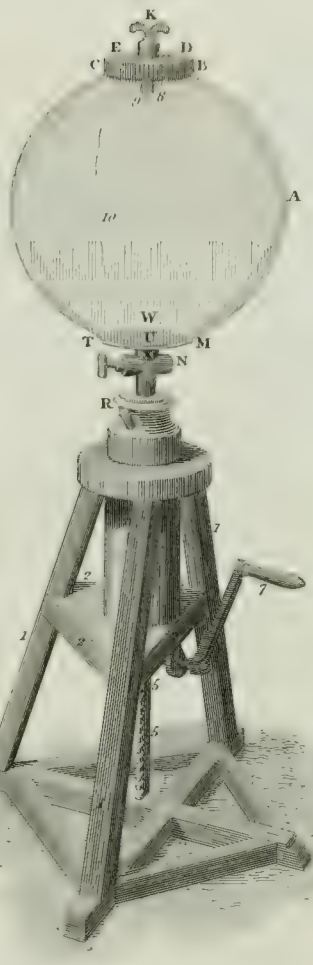

Fig. 26.
Plate V.

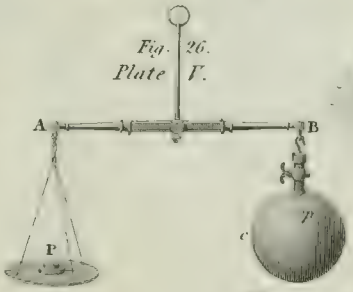

Fig. 27.

Fig. 28.

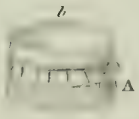

Fig. 29.

Fig. 30.

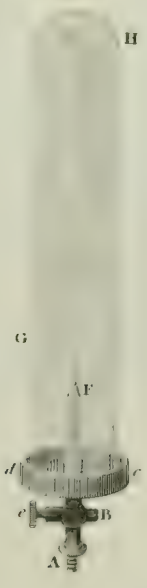

Fig. 31.

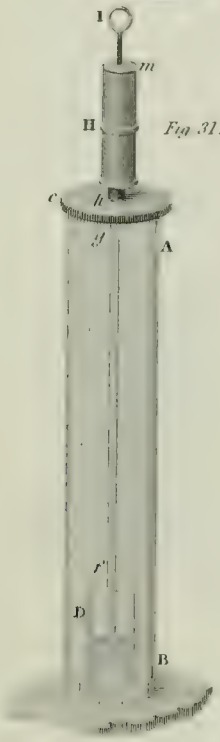

Fig. 32.

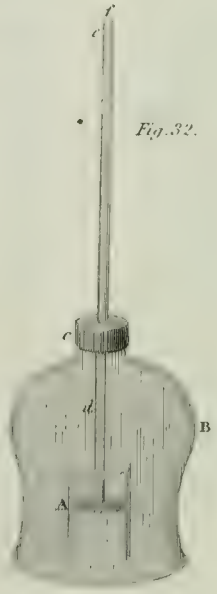

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Fig. 33.

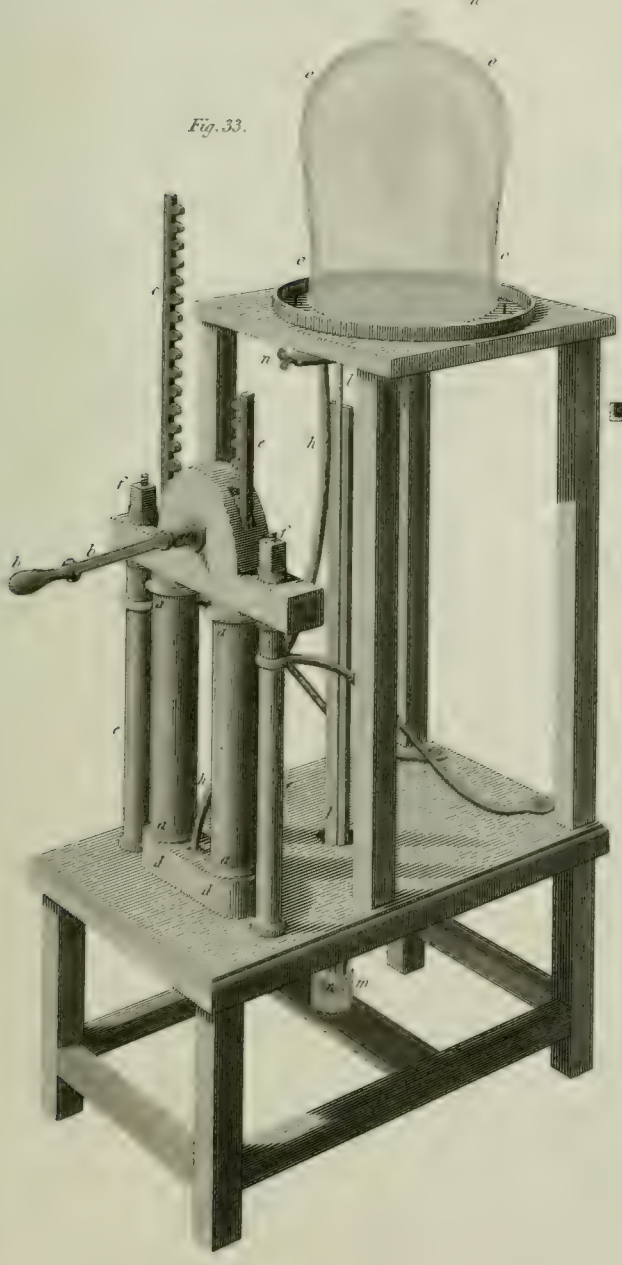
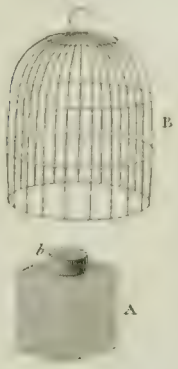


Fig. 35.

Fig. 36.

Fig. 37.



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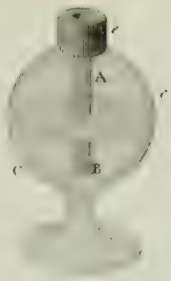
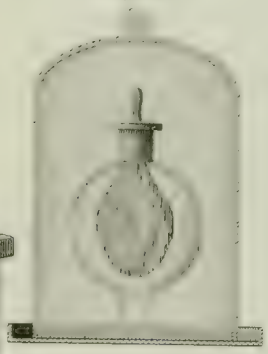


Fig. 39.

Fig. 40.



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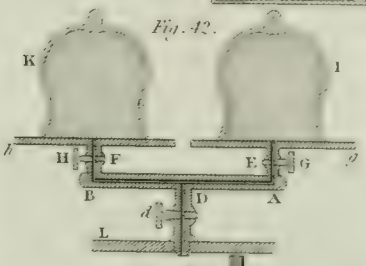

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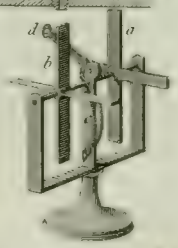


Fig. 34.

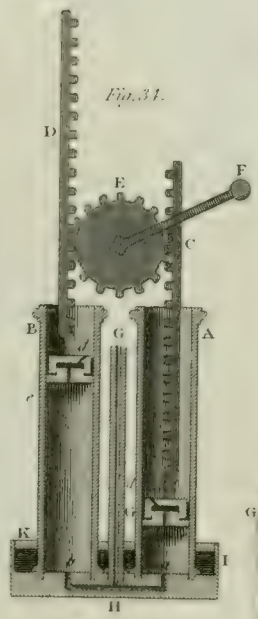
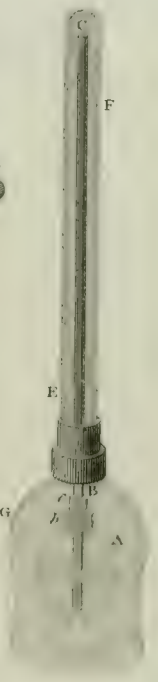


Fig. 41.



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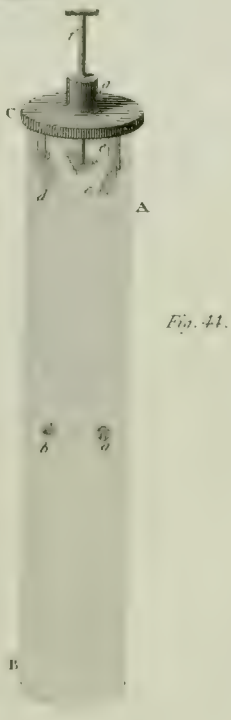

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AIR PUMP.

Smeaton's

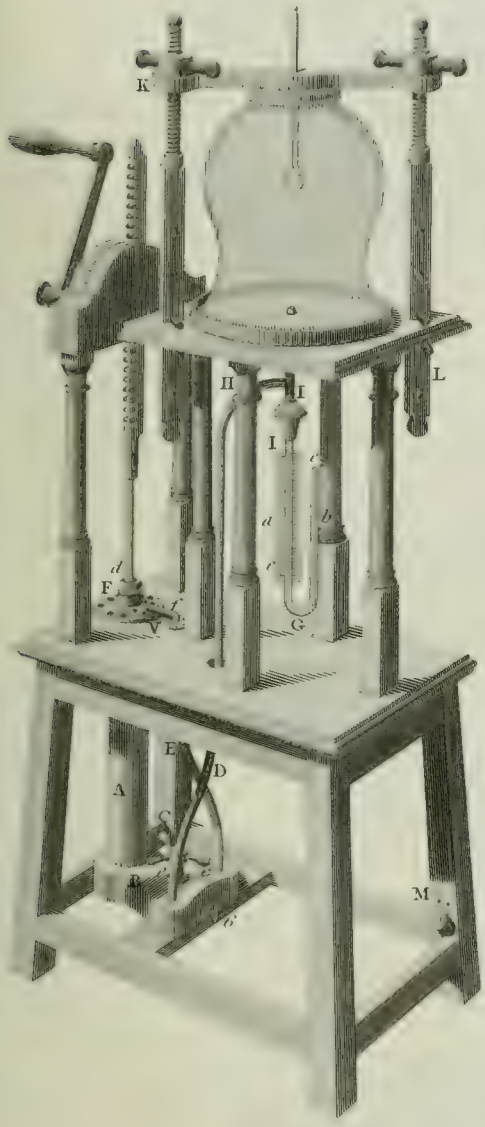


Fig. 45.

Nairne's

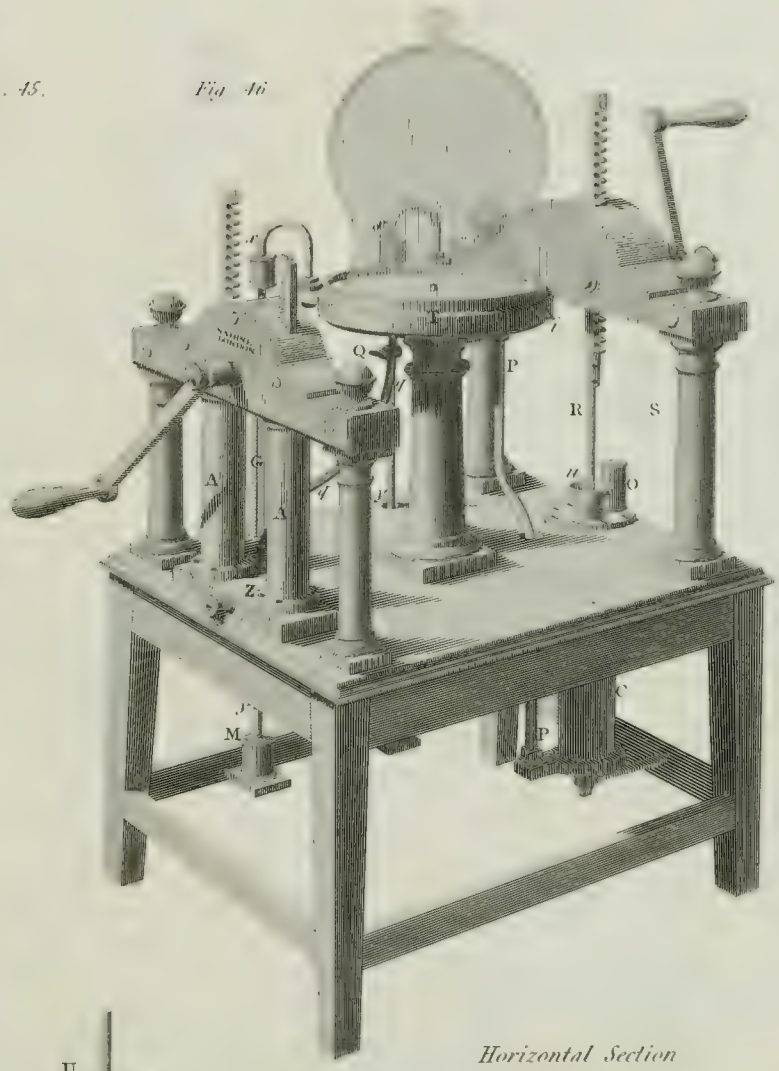


Fig 46

Horizontal Section

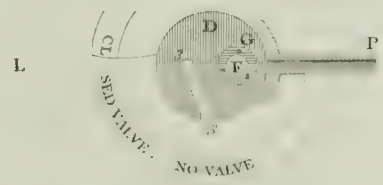
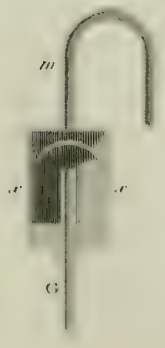


Fig. B.B.



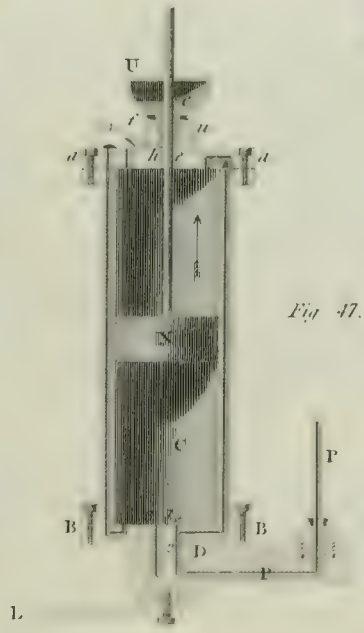
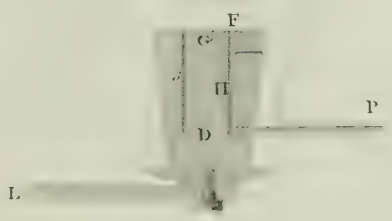


Fig 47.

Fig A.A.



J. Farey, delin. Published as the Act directs, 1819, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry Sc.

PNEUMATICS.

AIR PUMP &c.

Fig. 48.

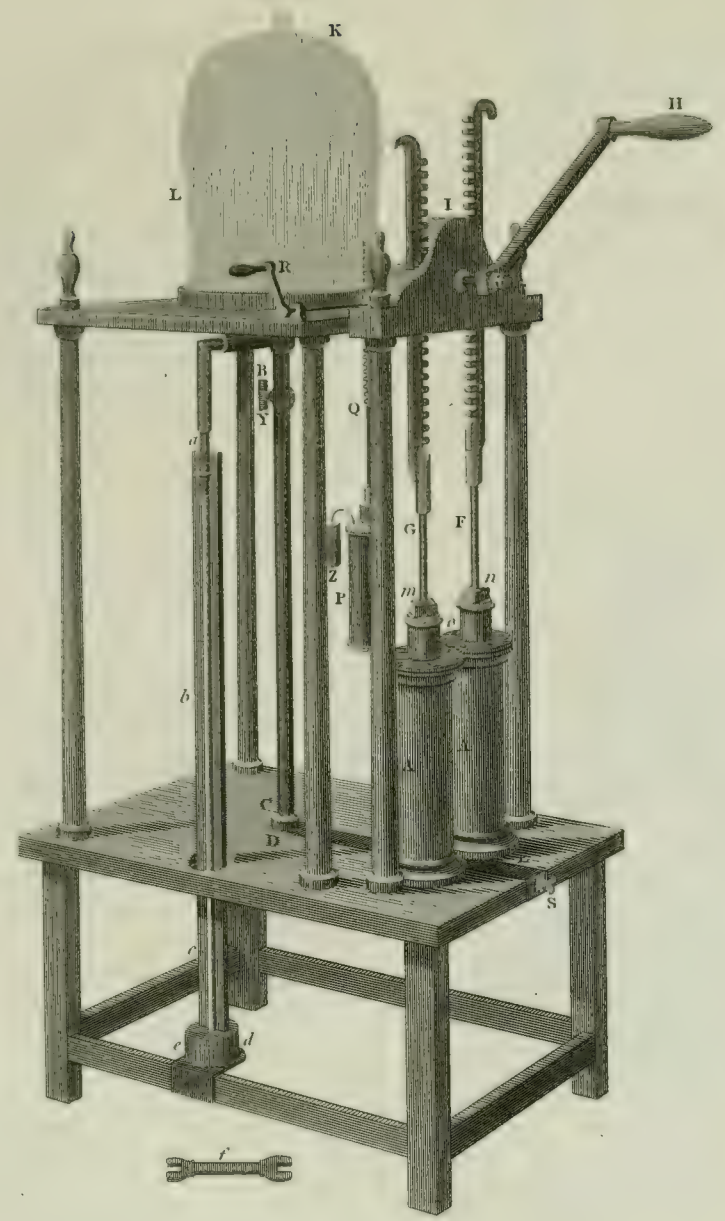
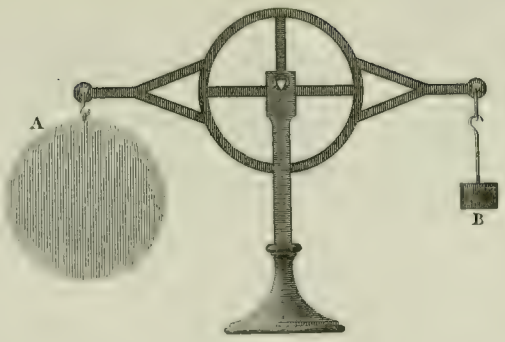


Fig. 55.



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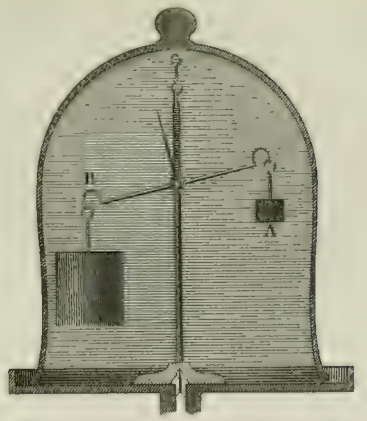
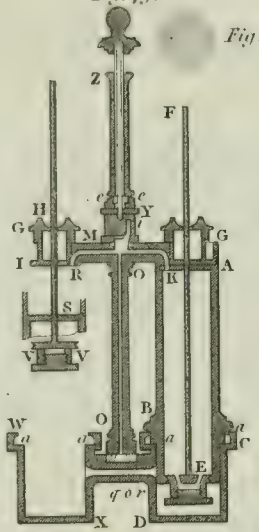


Fig. 49.

Fig. 50.



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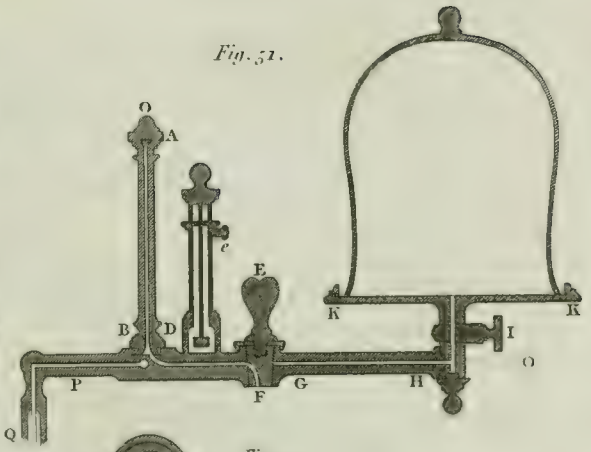

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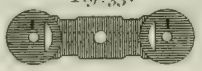

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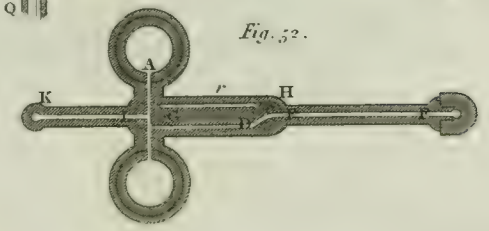

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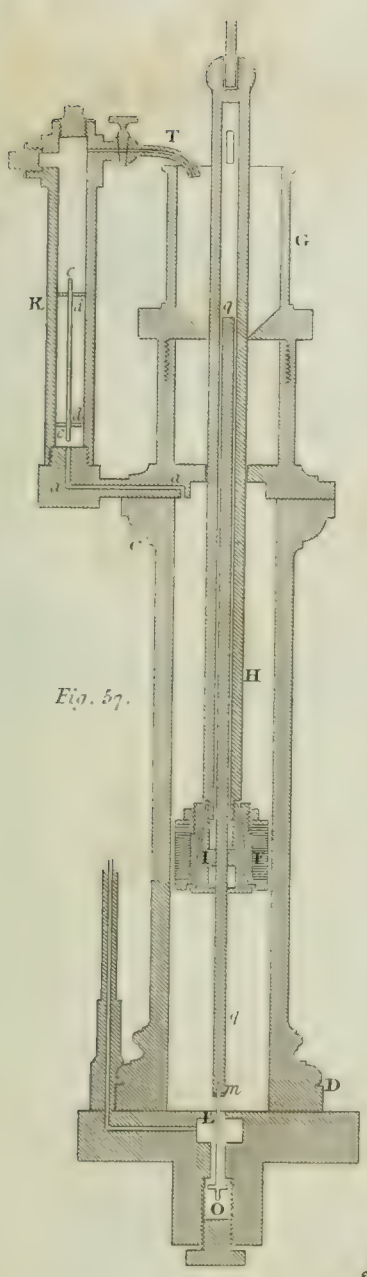

Fig. 57.

Fig. 56.

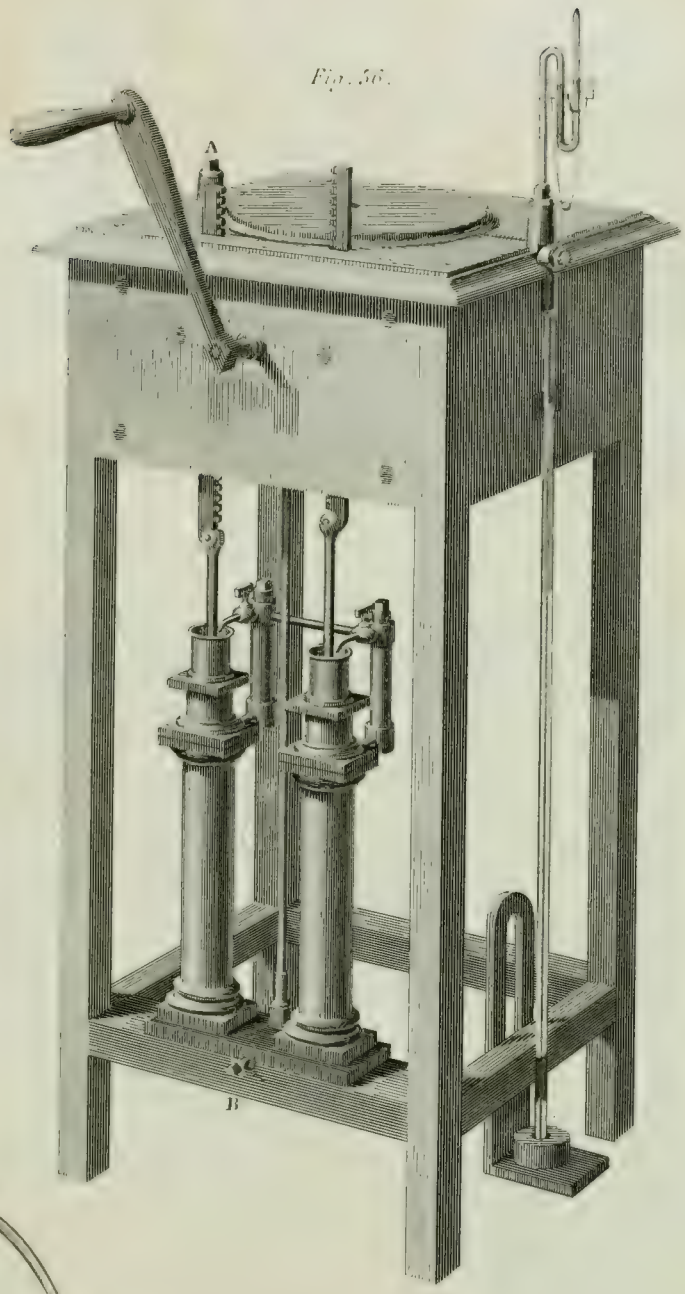

Fig. 68.

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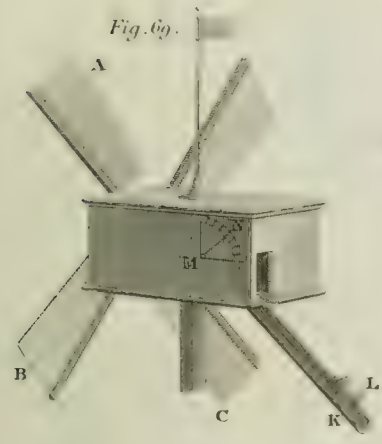
ANEMOMETER.

Fig. 69.



AIR-EOMETER.

Fig. 70.

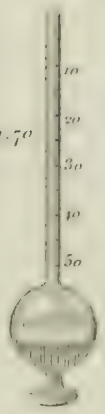
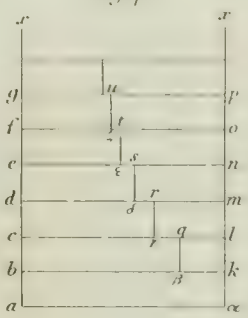


Fig. 71.

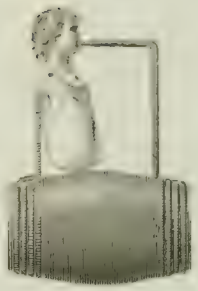
ATMOSPHERE.

Fig. 72.



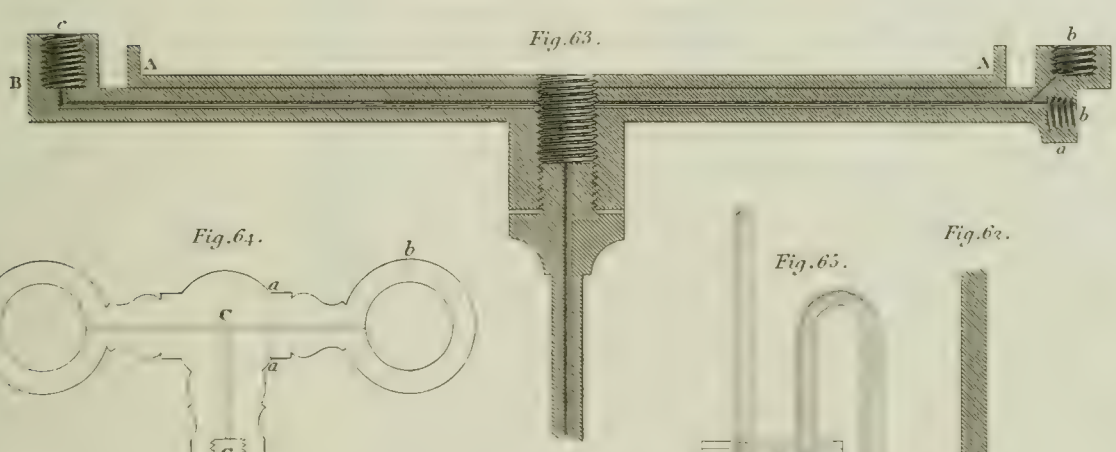
BACCHUS.

Fig. 73.



CUTHBERTSON'S AIR PUMP.

Fig. 63.



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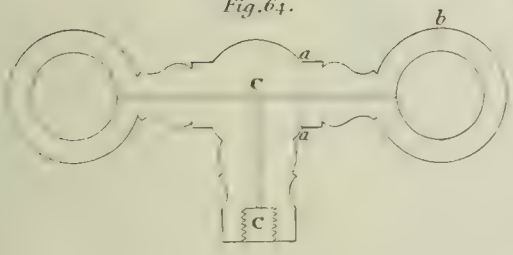


Fig. 65.

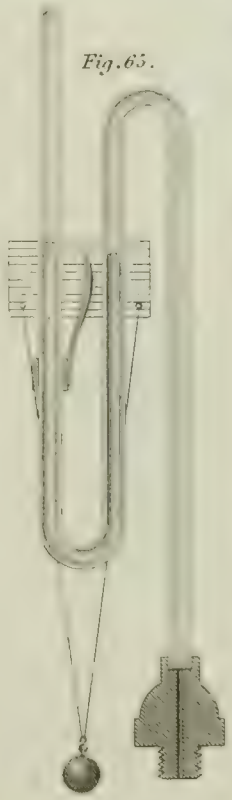
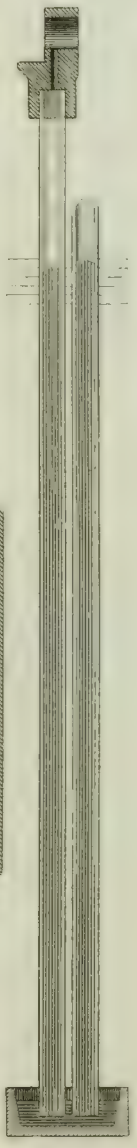


Fig. 62.

Fig. 66.



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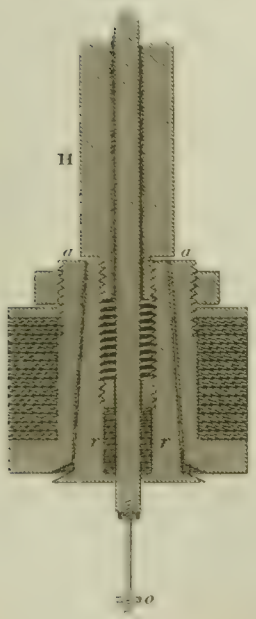

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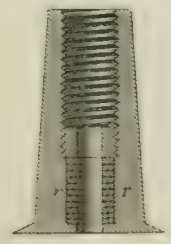

Fig. 60.

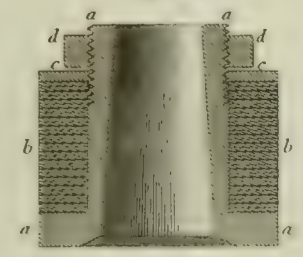

Fig. 59.

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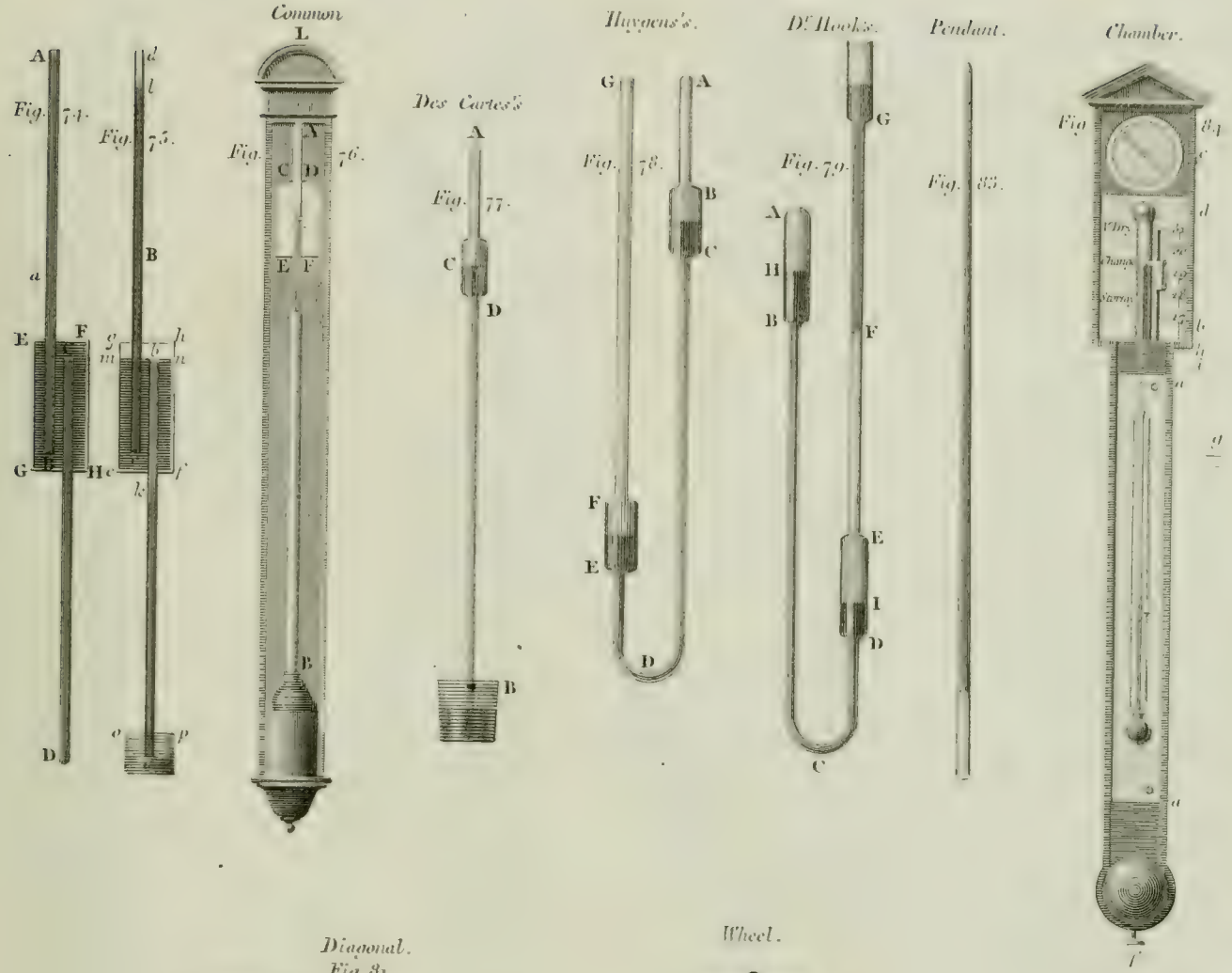
BAROMETER.



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BAROMETER.

Marine

Fig. 87

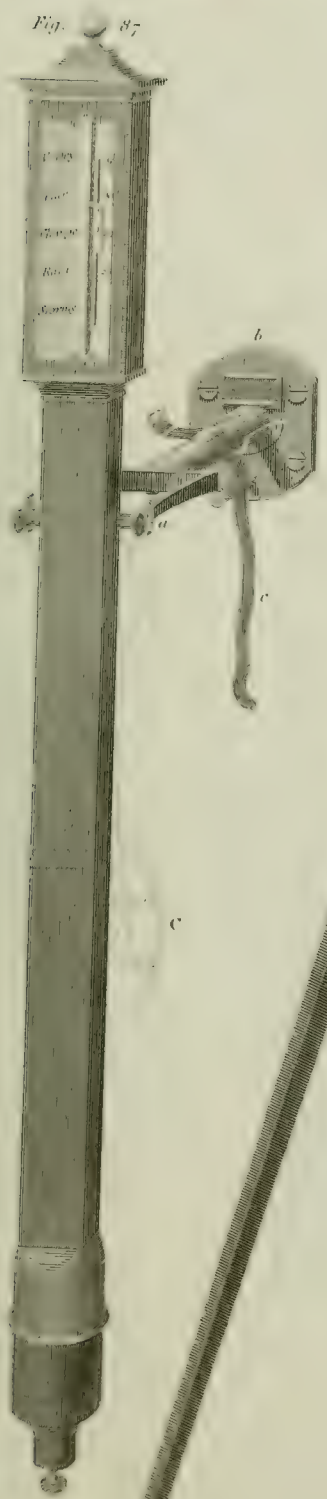
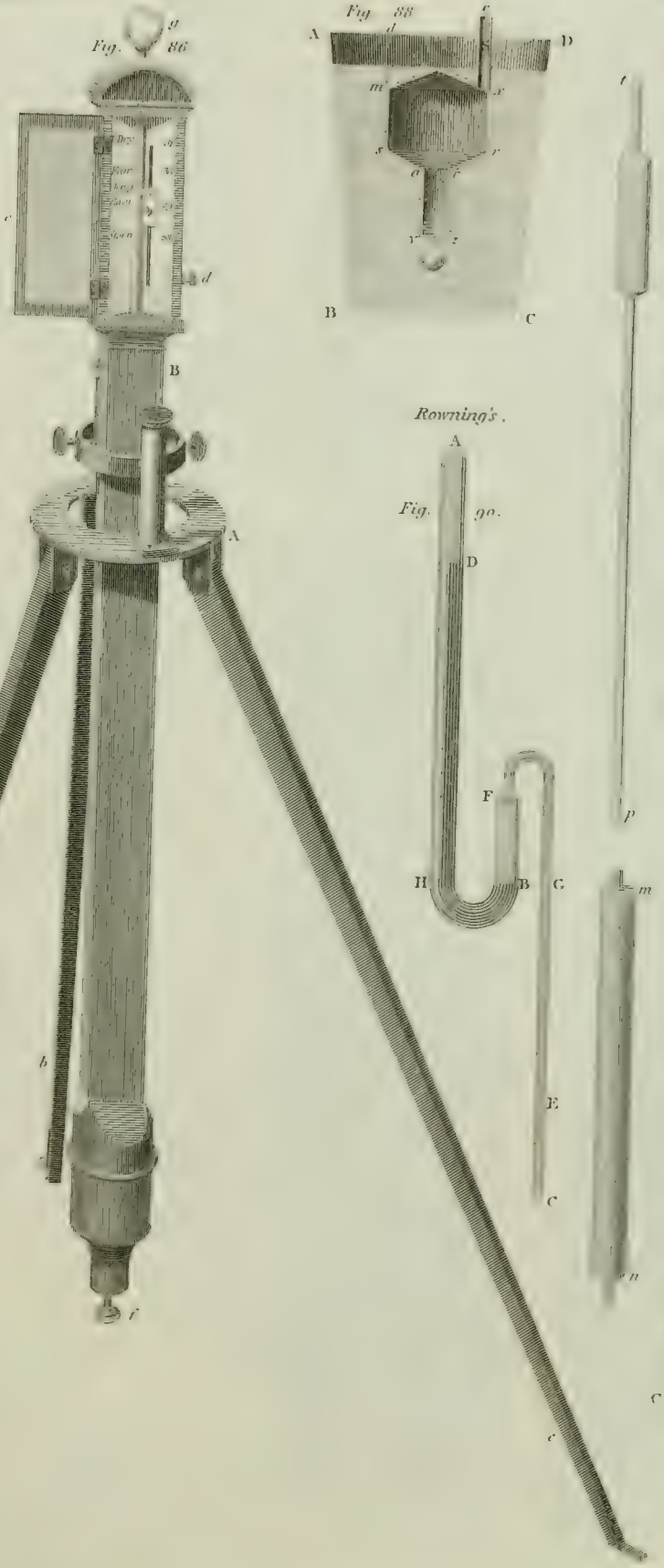


Fig. 86



Gaswell's.

Fig. 88

Rowning's.

Fig. 90.

Rowning's

Fig. 89

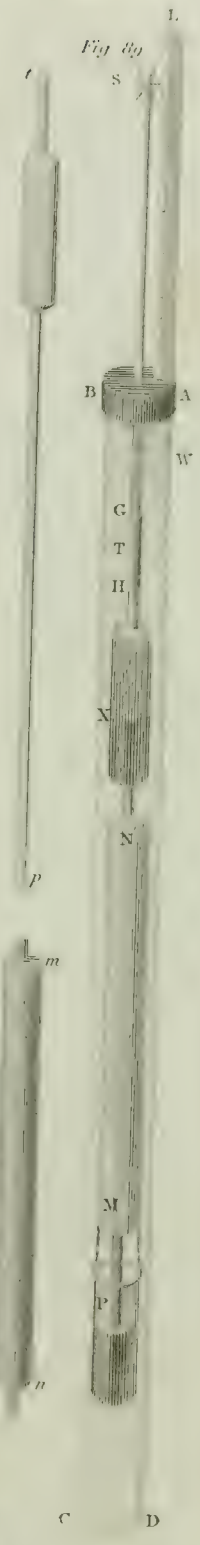


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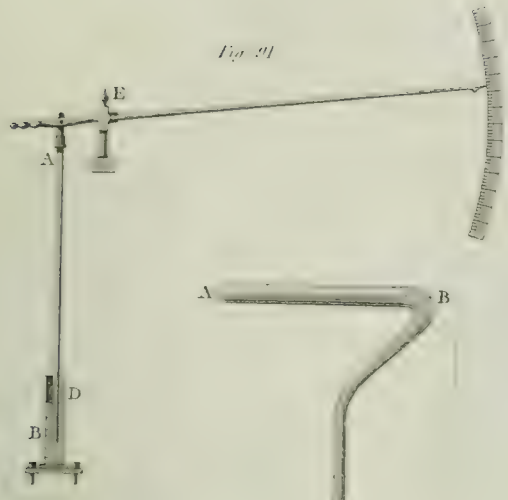
Fig. 91



Keith's. *Fig. 92.*

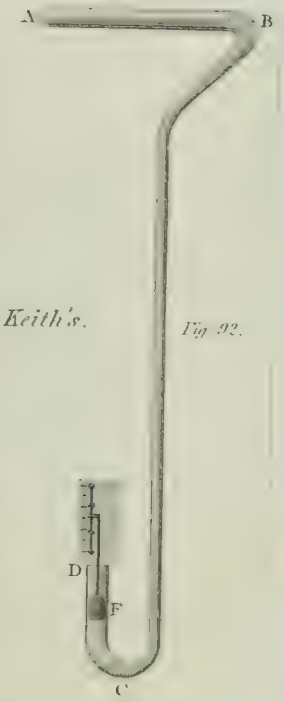


Fig. 93.

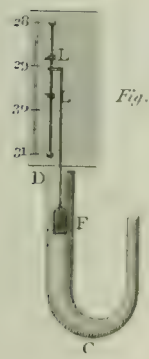
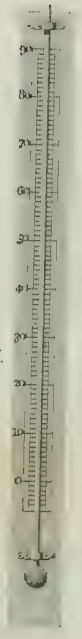
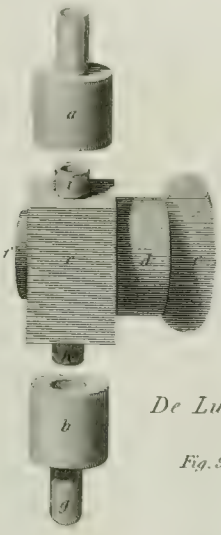


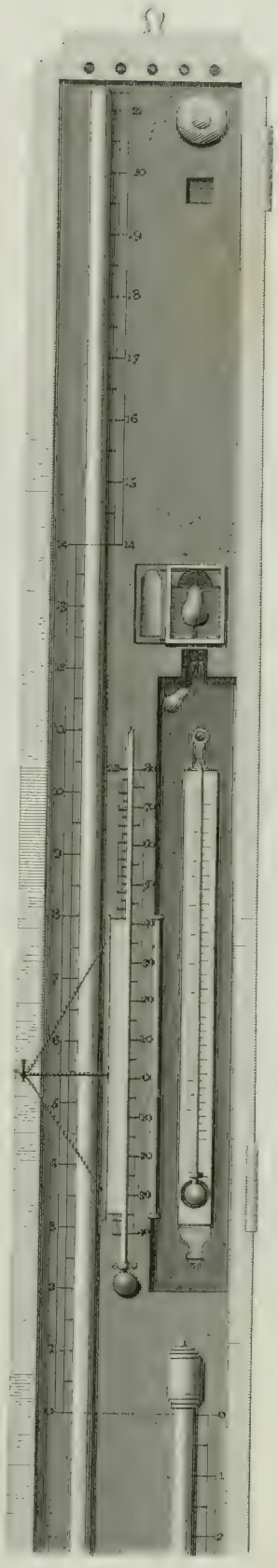
Fig. 95.





De Luc's.

Fig. 94.



Hamilton's.

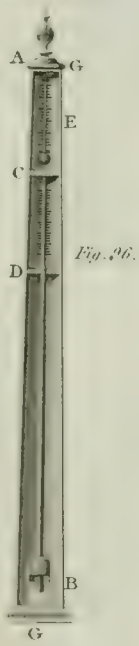
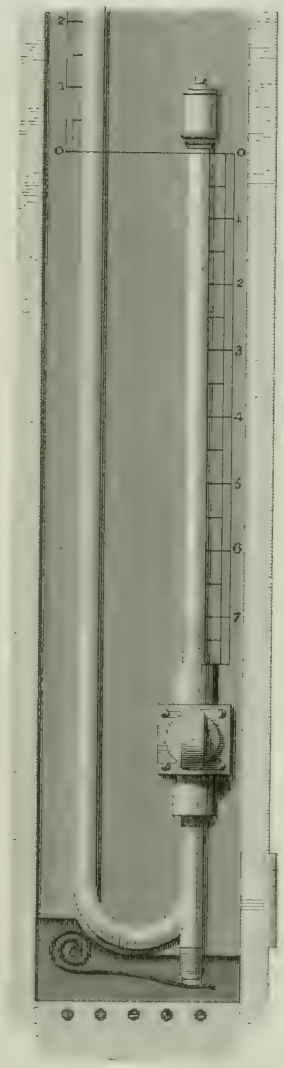


Fig. 96.



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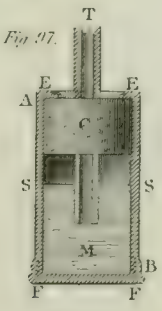
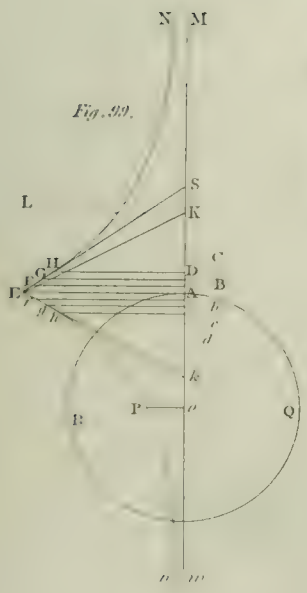


Fig. 99.



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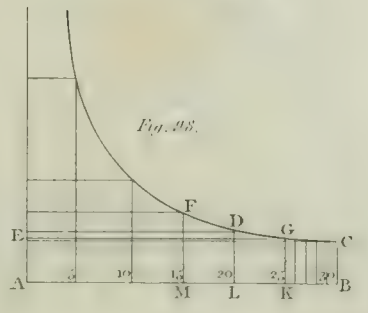
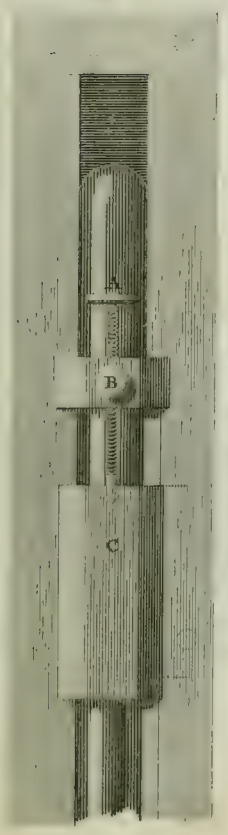


J. Farey delin. *Published as the Act directs, 1813, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.* *Lowry Sc.*

BAROMETER.

Fig. 104.



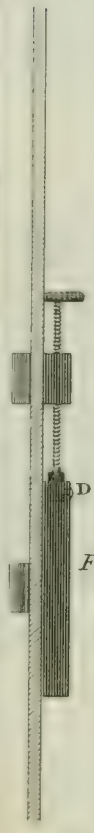


Fig. 105.

Fig. 102

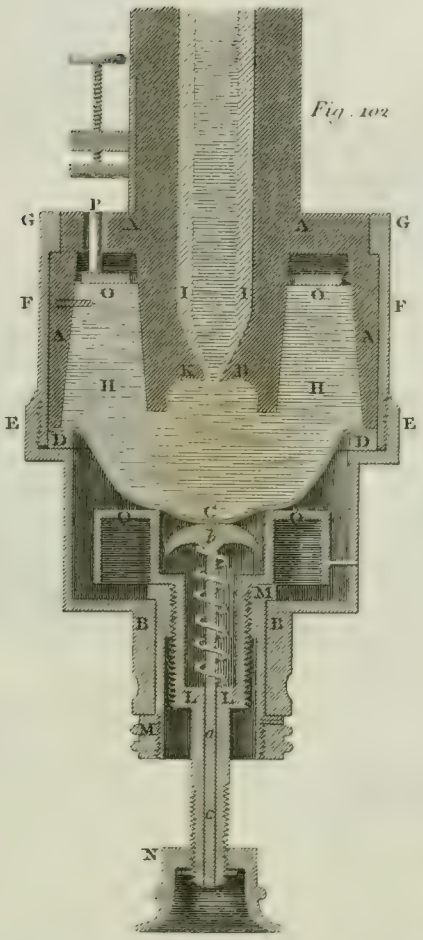
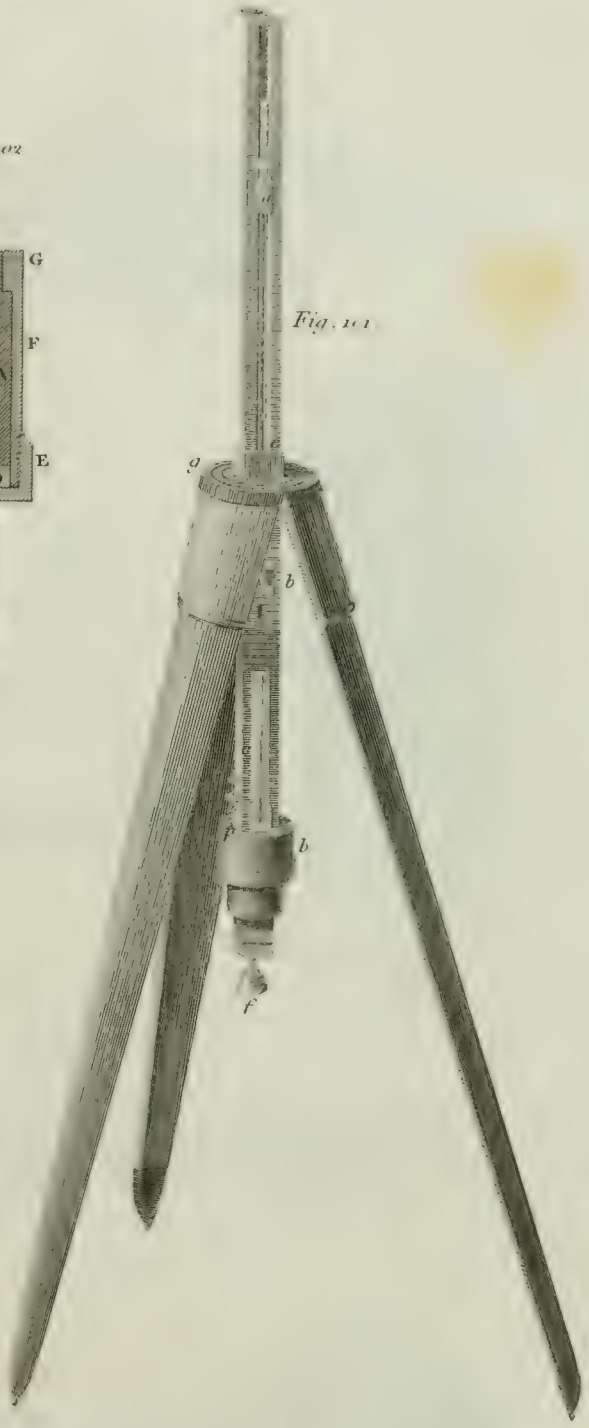
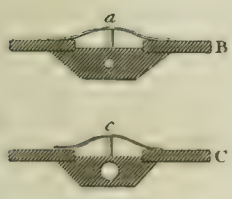


Fig. 101





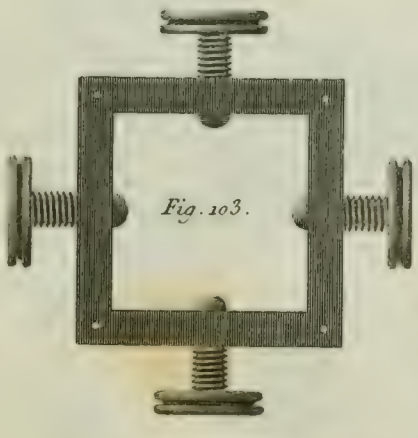
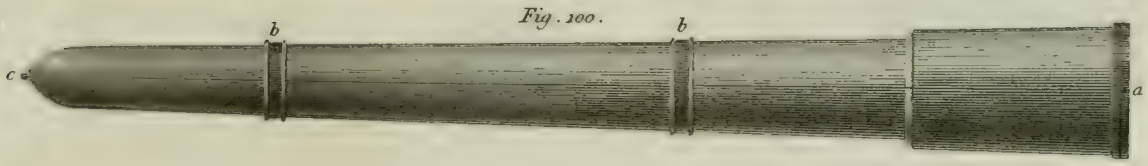


Fig. 103.

Fig. 100.



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Engraved by Wilson Lowry.

Fig. 107.

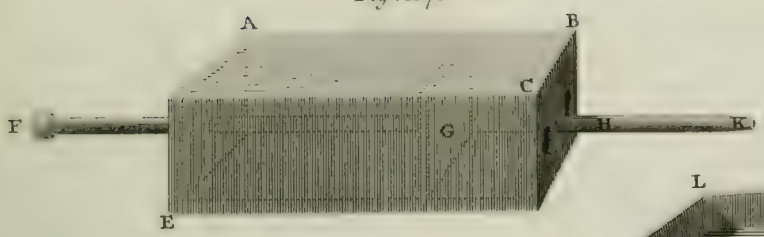
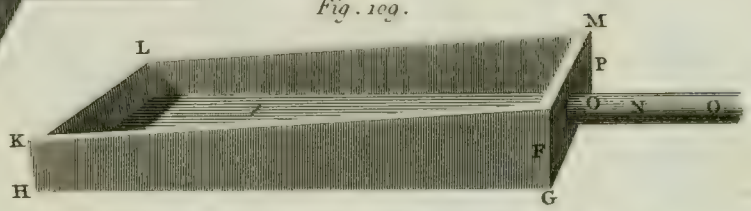


Fig. 109.



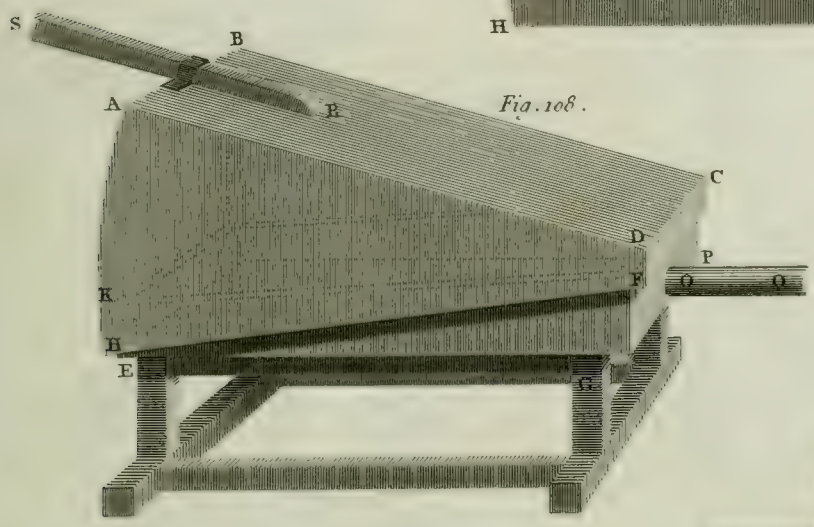
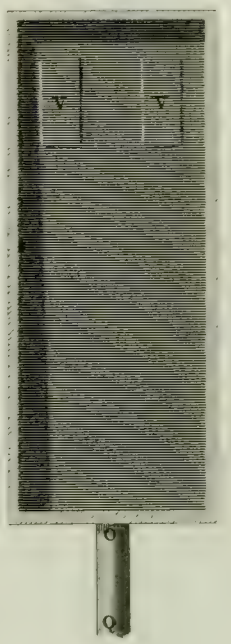
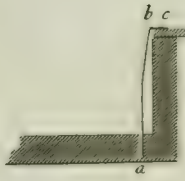


Fig. 108.

Fig. 110.





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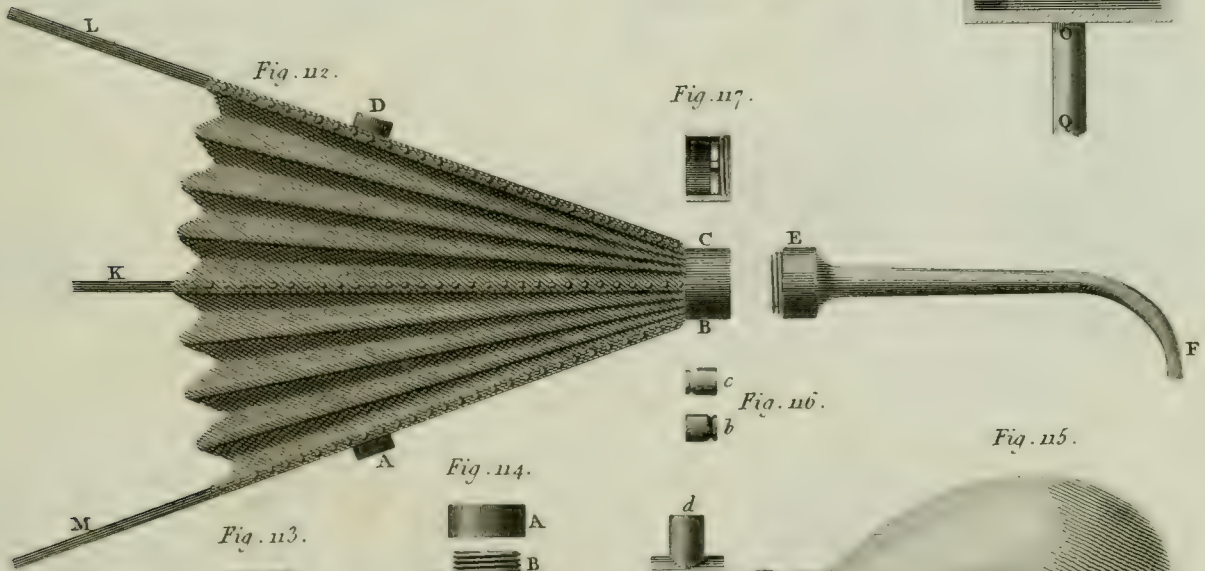


Fig. 112.

Fig. 117.

Fig. 116.

Fig. 115.

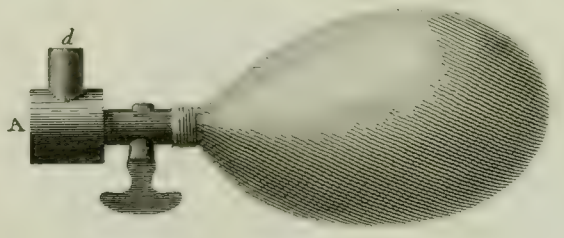
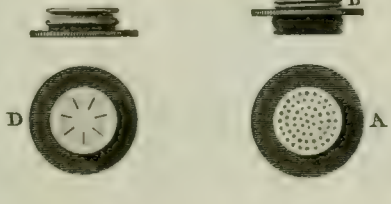


Fig. 114.

Fig. 113.



Published as the Act directs, March 1st 1805, by Longman, Hurst, Rees & Orme, Paternoster Row.

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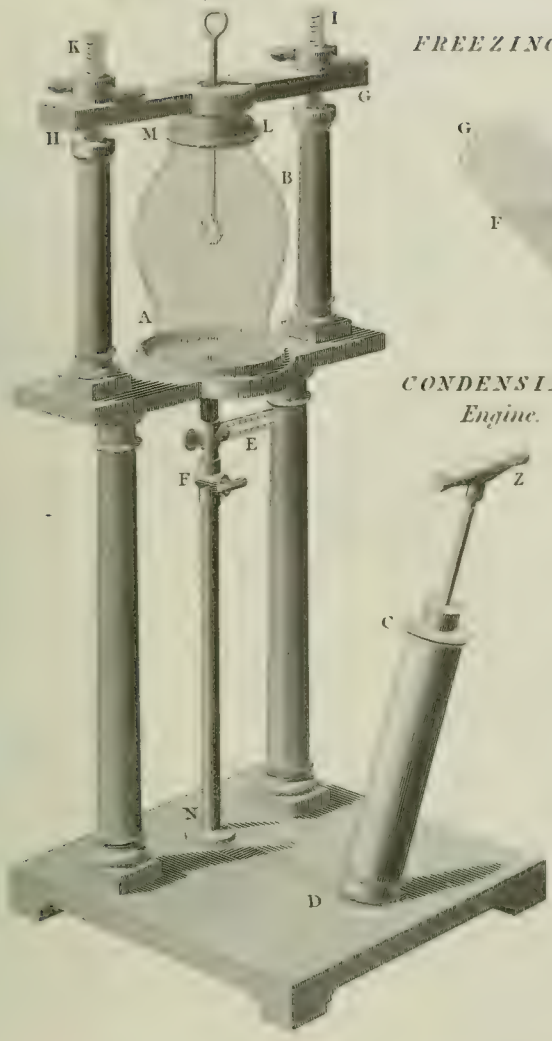
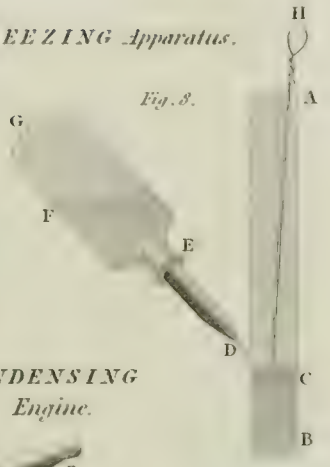
Fig 3.



FREEZING Apparatus.

Fig. 8.



CONDENSING Engine.

PEAR Gage.

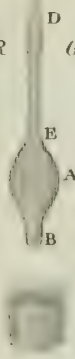


Fig. 4.

CONDENSER'S.

Fig 2

Fig 1.

GAGE of Condenser.

Fig 6.

Fig. 5.

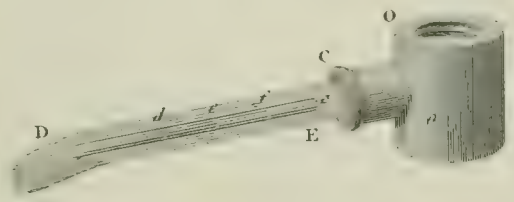
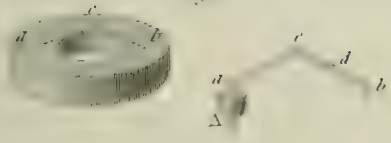


Fig 7.



FREEZING.

Fig. 4.

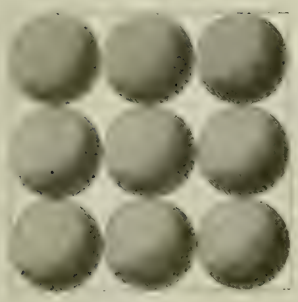


Fig 5

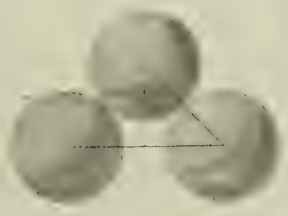


Fig 6

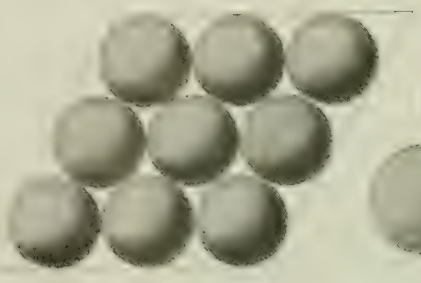


Fig 7

J. Farey, delin. Published as the Act directs, 1814, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. W. Lowry, Sc.

PNEUMATICS.

PYRMONT WATER.

Fig. 1

Fig. 2

Fig. 3

Fig. 5

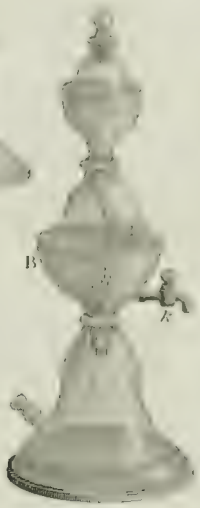


Fig. 6

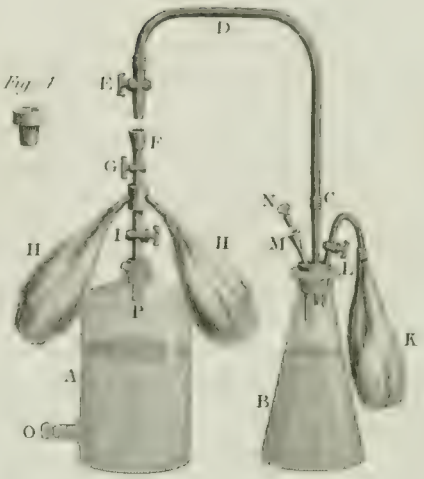
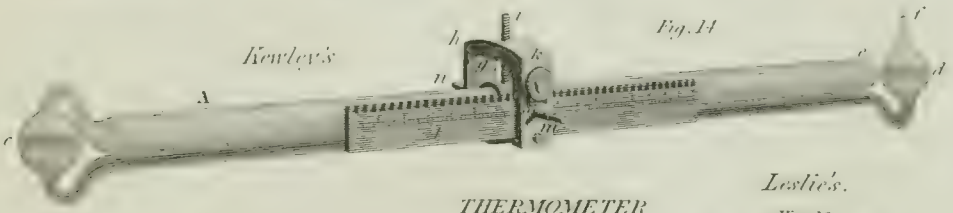


Fig. 7

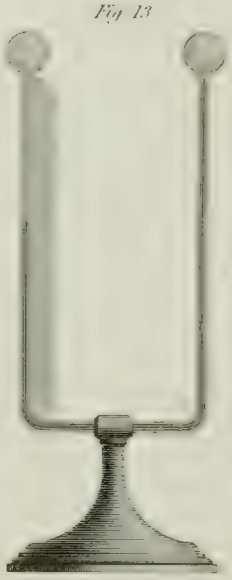
Kewley's THERMOMETER

Fig. 14



Leslie's.

Fig. 13



Lind's WIND GAGE.

Fig. 9

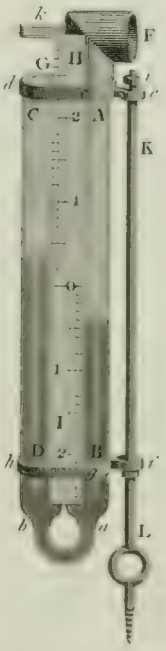


Fig. 10

Martin's WIND GAGE.

Fig. 11

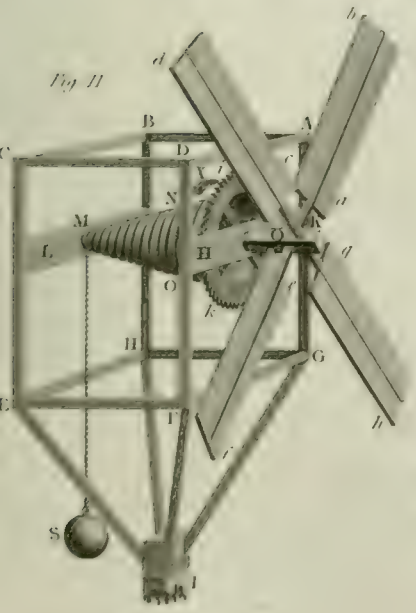
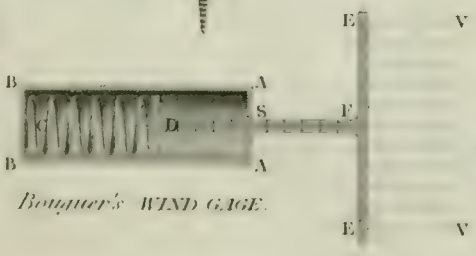


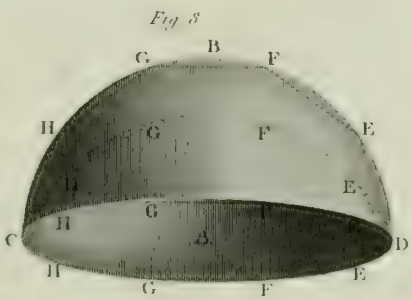
Fig. 12



Bouguer's WIND GAGE.

WHISPERING PLACE.

Fig. 8



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Lowry Sc.

PNEUMATICS.

THERMOMETER.

Fig. 1.

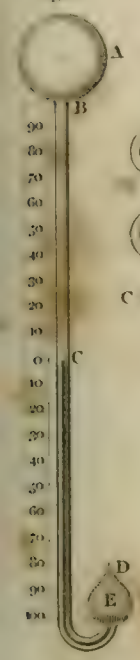

Fig. 2.

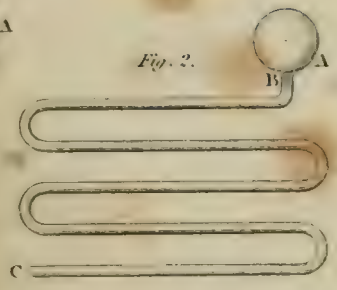

Fig. 3.

Fig. 6.

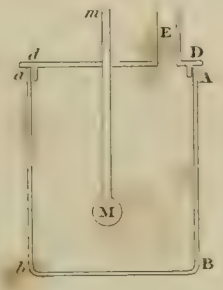

Fig. 5.

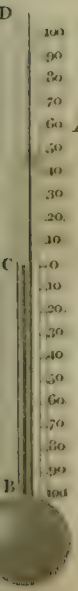

Fig. 7.

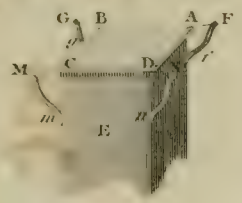

Fig. 4.

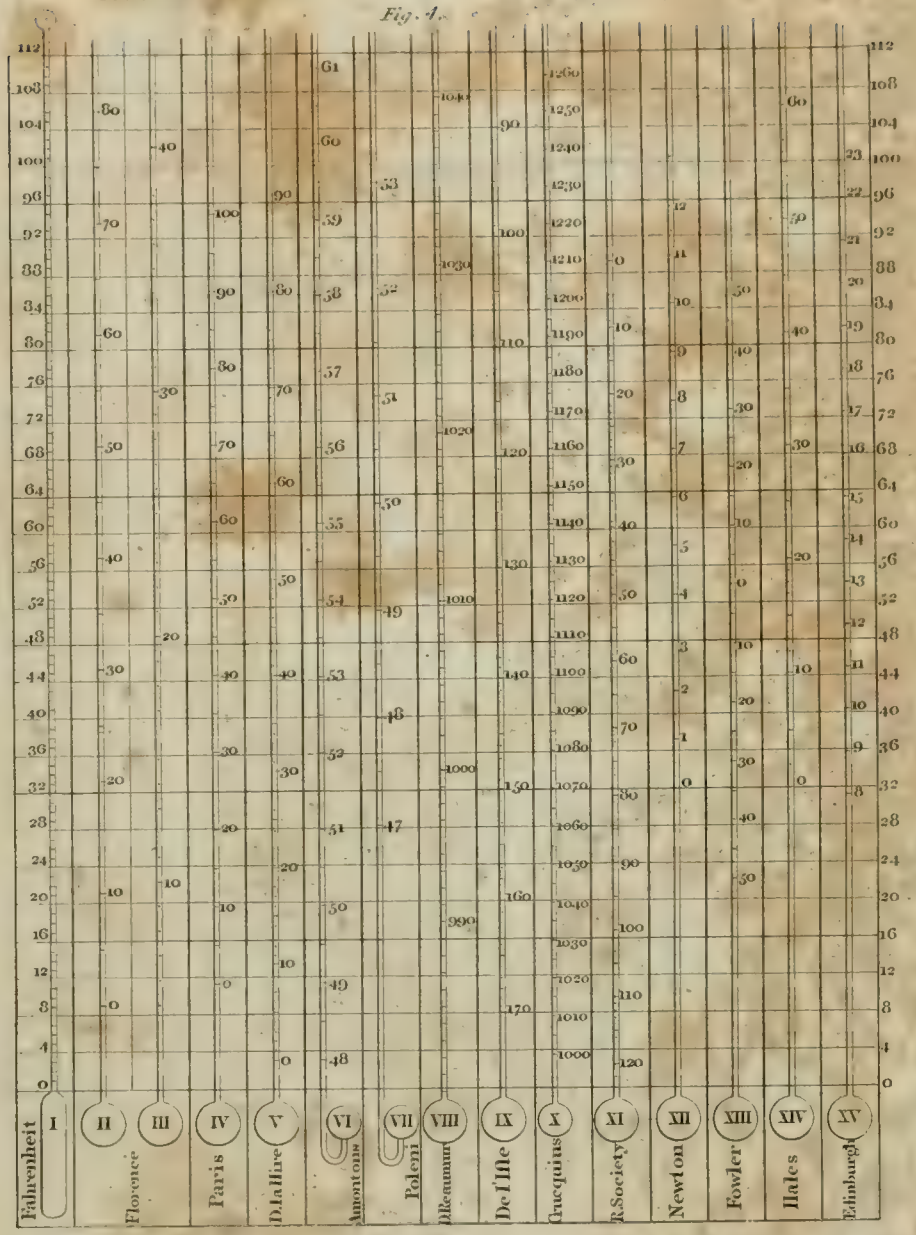

Fig. 10.

Fig. 9.

Fig. 8.

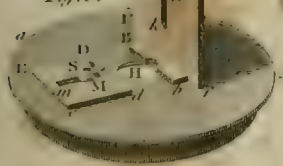

Fig. 16.

Height of Barometer.

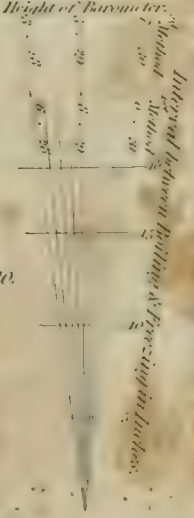

Fig. 10.

Fig. 11.

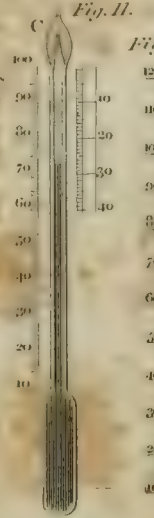

Fig. 12.

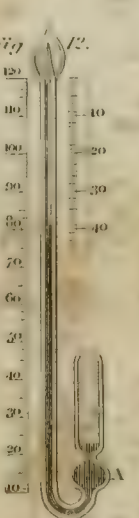

Fig. 13.

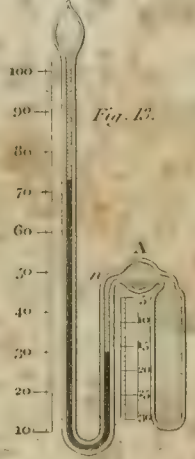

Fig. 14.

Fig. 15.

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Lowry Sc.

PNEUMATICS.

VENTILATOR.

PLATE XVII.

Fig. 1.

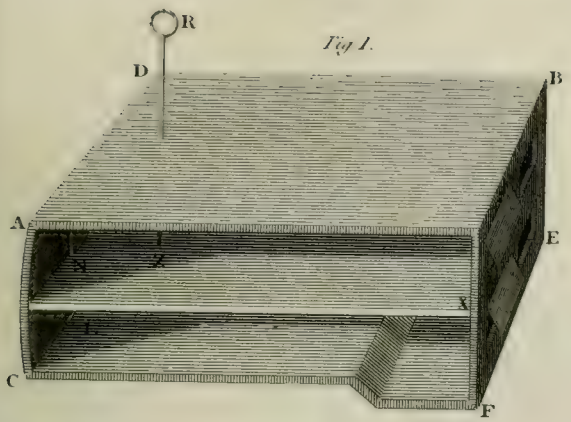


Fig. 3.

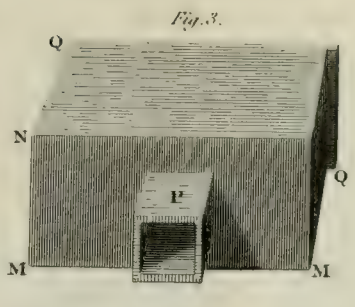


Fig. 2

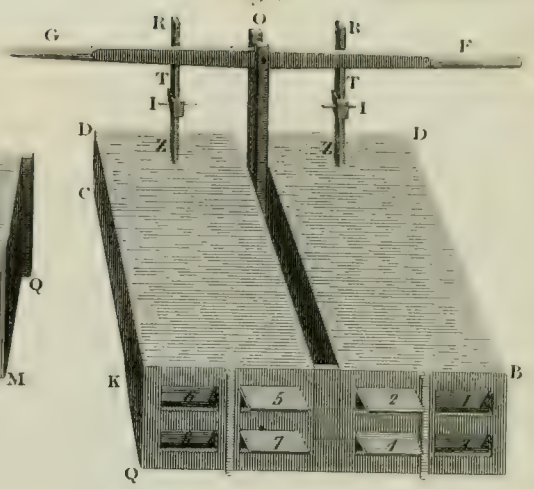


Fig. 5.

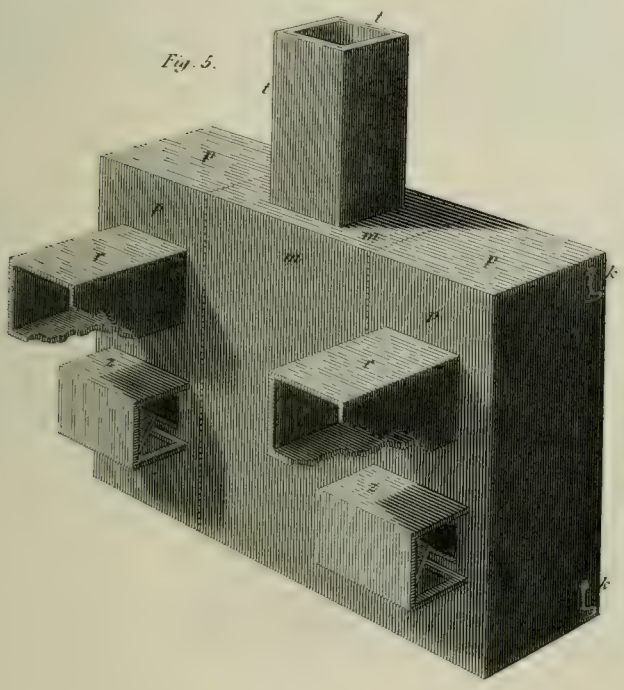
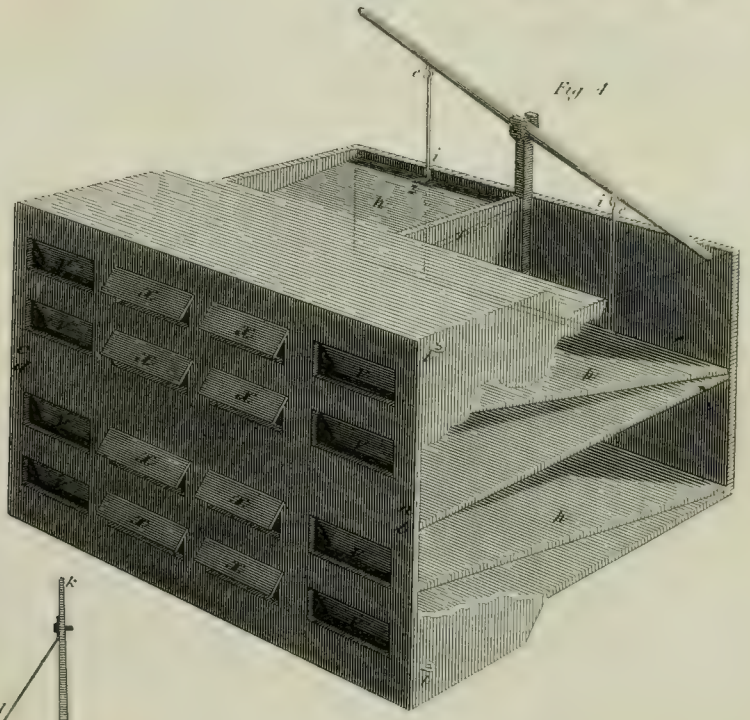


Fig. 4



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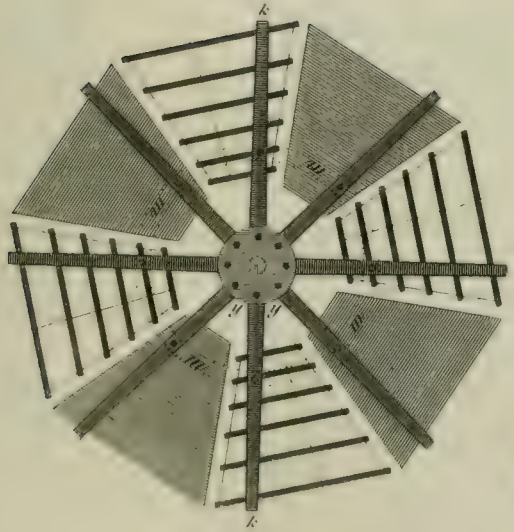

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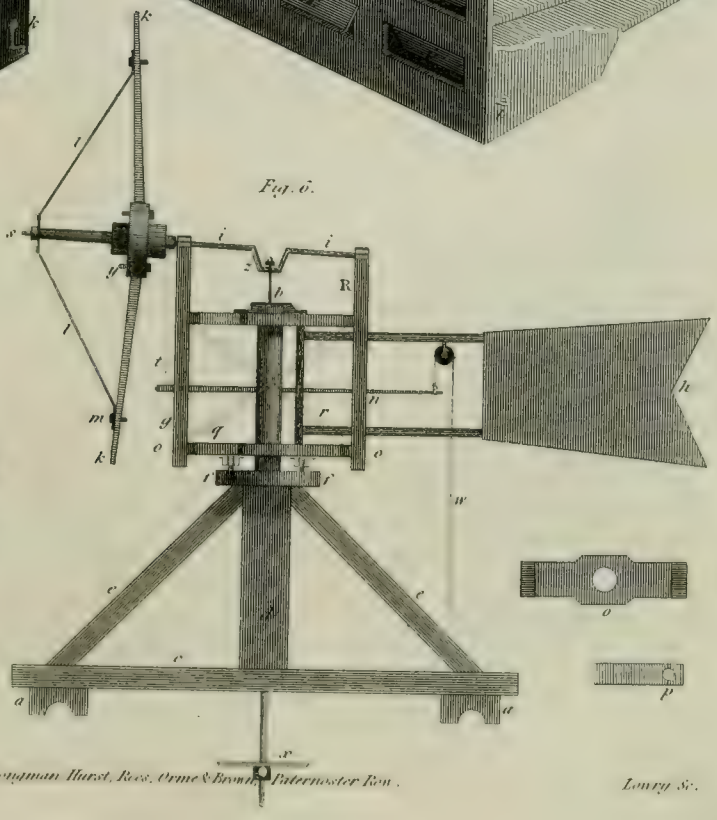


Published as the Act directs, 1st Jan. by Longman Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry Sc.

PORTER BREWERY.

Fig. 1.

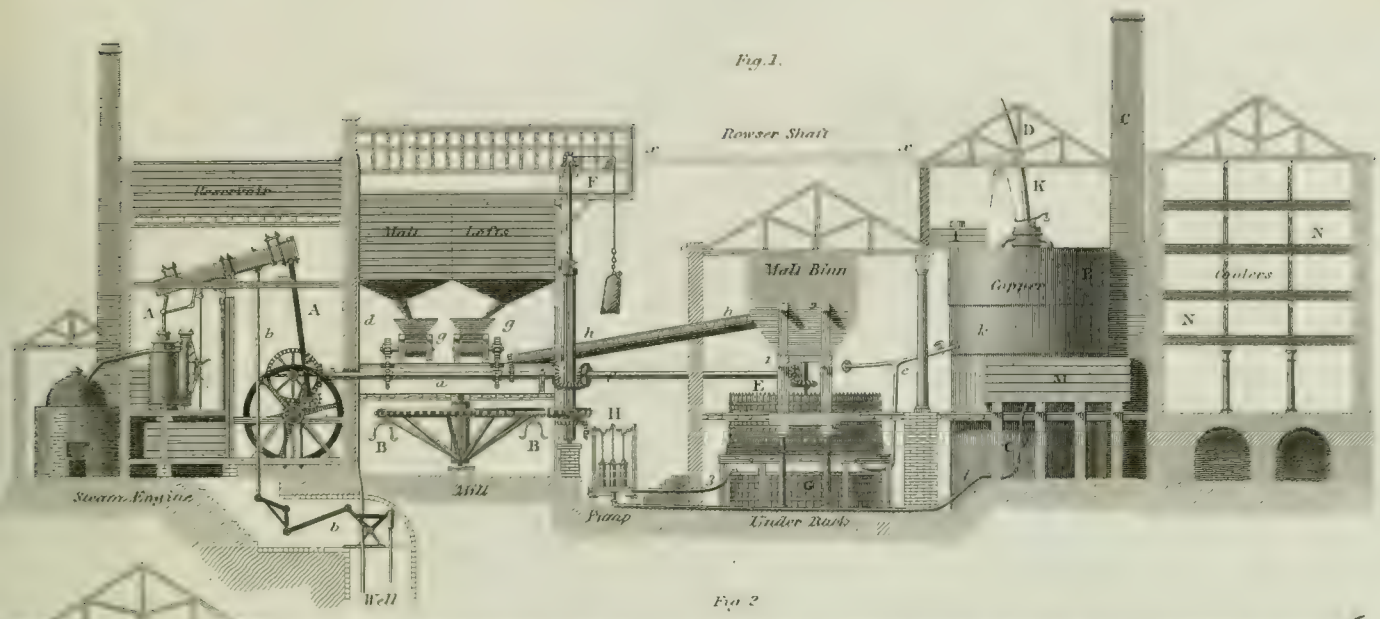


Fig. 2

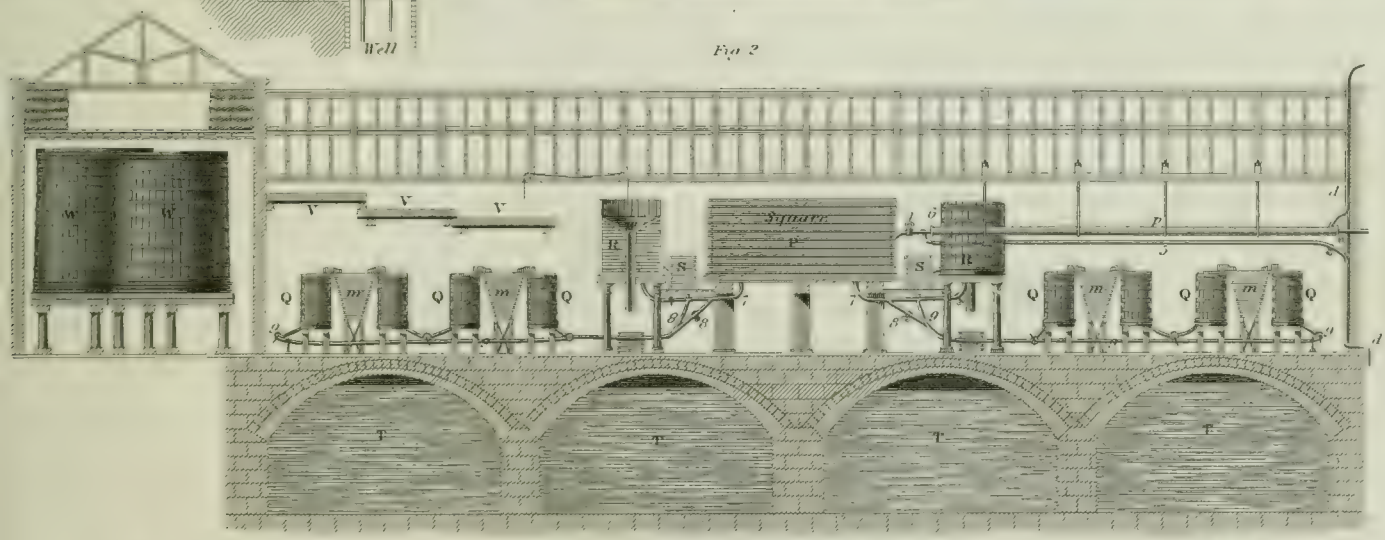
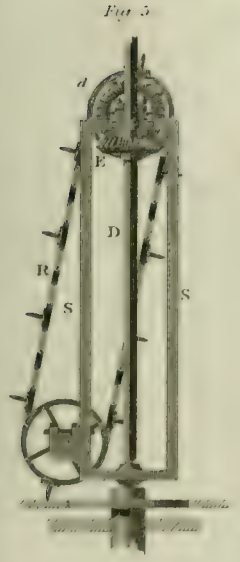


Fig. 5



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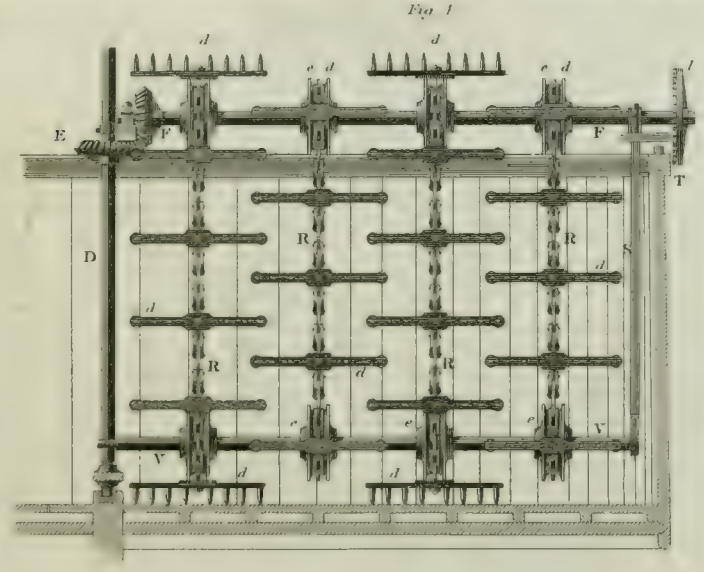
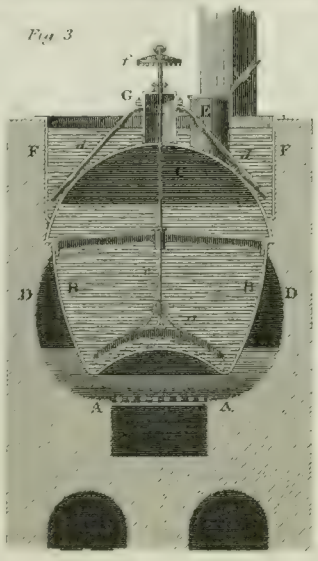


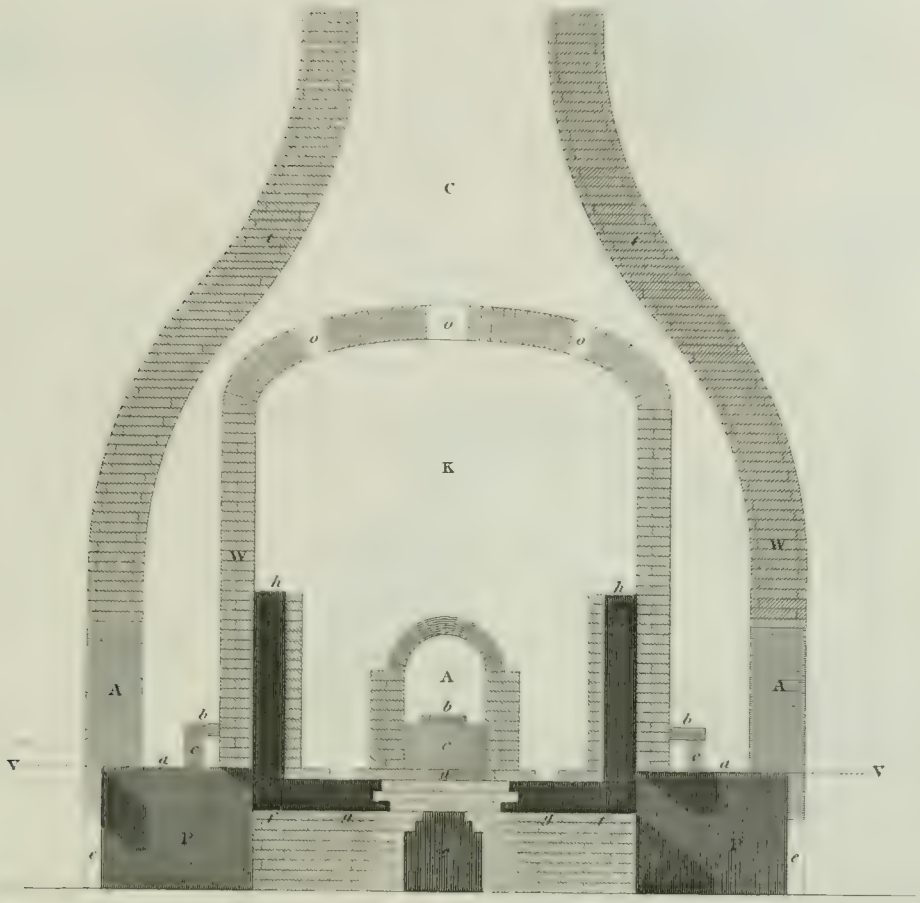
Fig. 3



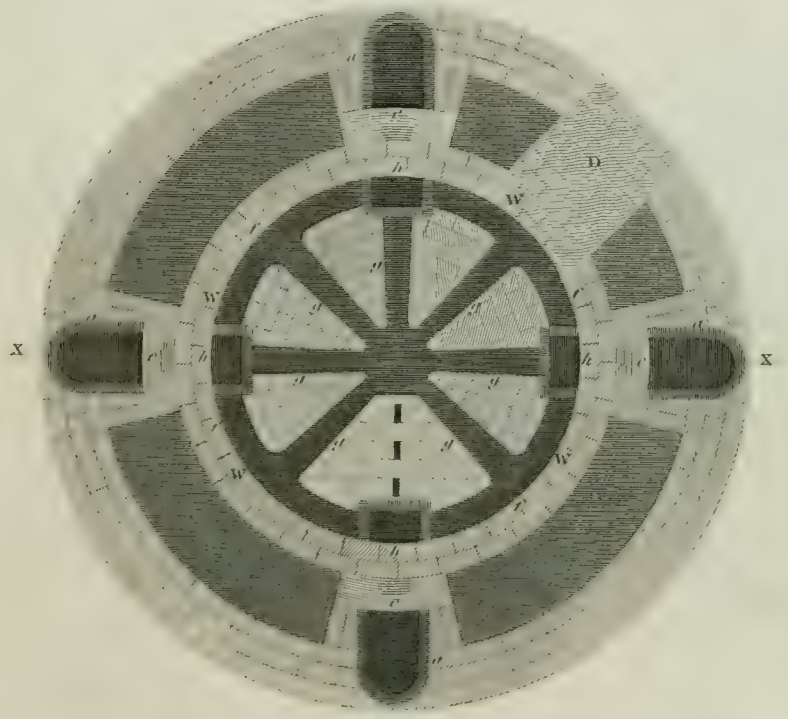
Farey delin. Published as the Act directs, 1816 by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row. Lowry Sculp.

POTTERY

Vertical Section.



Horizontal Section



Silvester del. *Published as the Act directs, 1815, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.* *Lowry Sculp.*

Mr BRAMAH'S HYDROSTATIC PRESS.

Fig. 4. Plan.

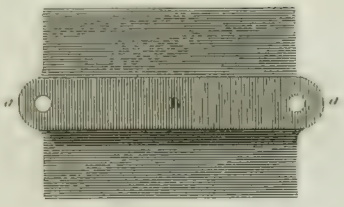


Fig. 3. Plan.

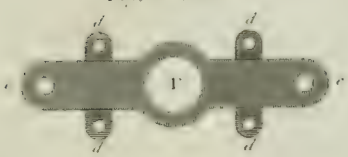
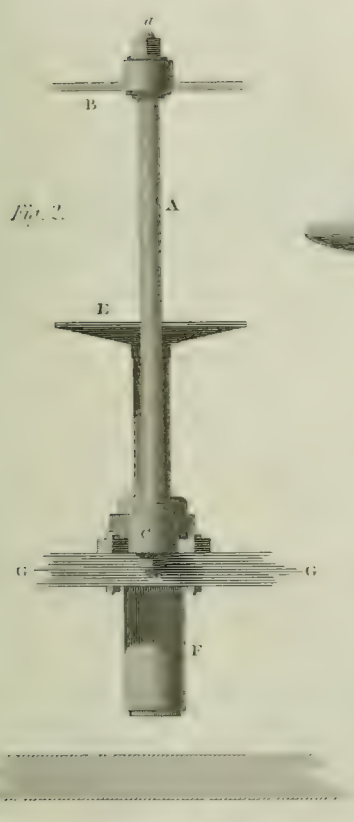
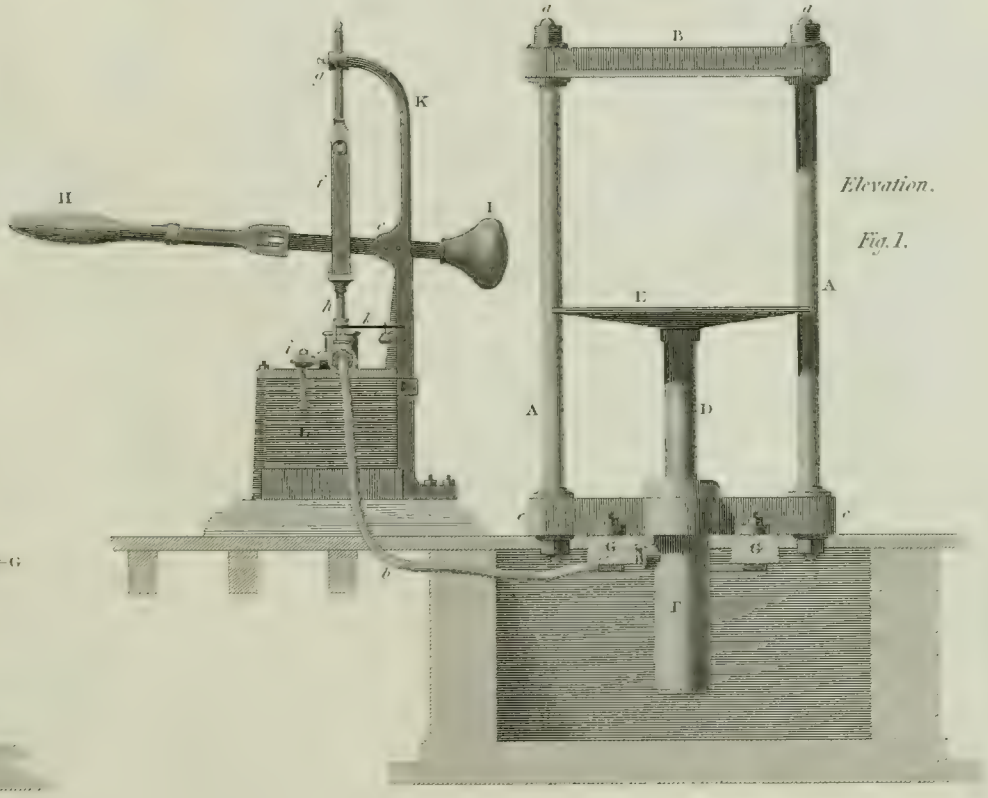


Fig. 2.





Elevation.

Fig. 1.

Pump

Sections of the

Cylinder

Fig. 5.

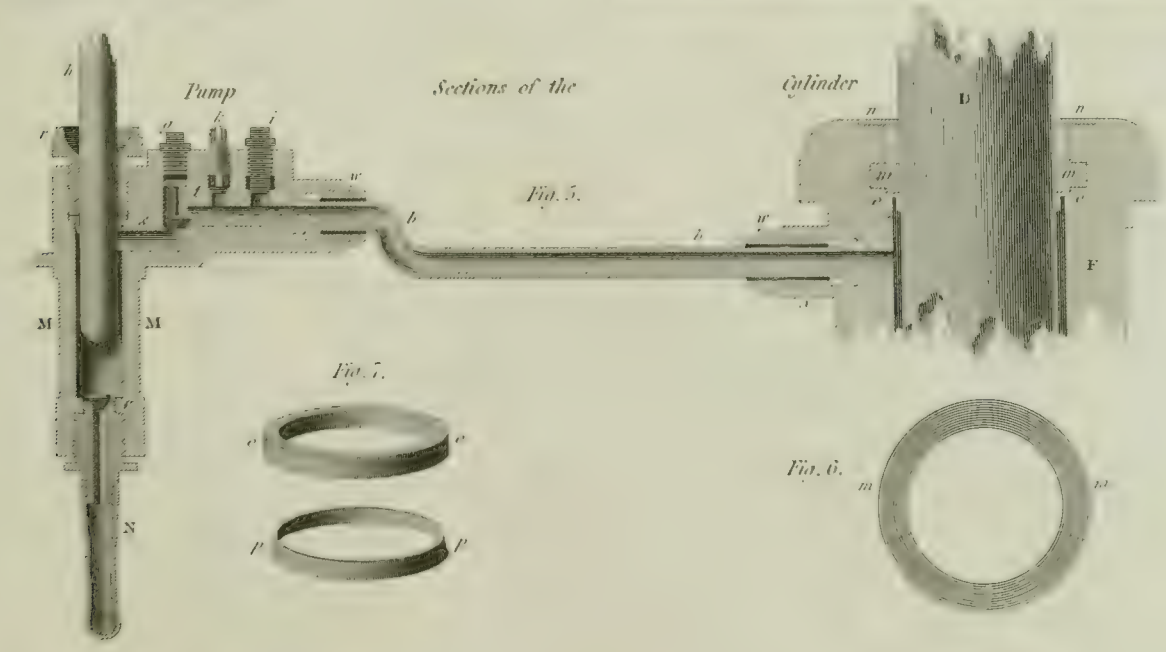


Fig. 7.

Fig. 6.

Published as the Act directs 1812, by Longman, Hurst, Rees, Orme and Brown Paternoster Row.

Mr. Smeaton's Water pressure Engine.

Fig. 3. Plan

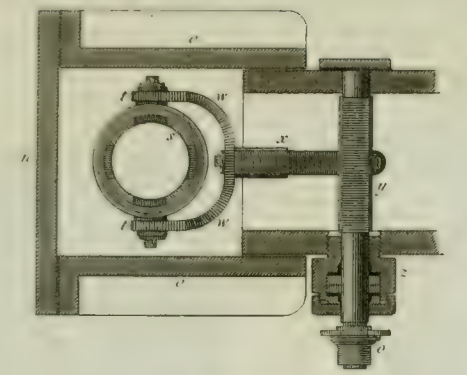


Fig. 4.
Section of the Valve

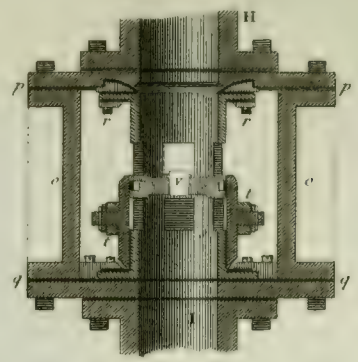


Fig. 5. Section

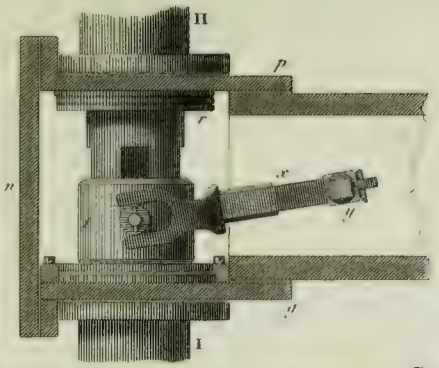


Fig. 2. Front Elevation

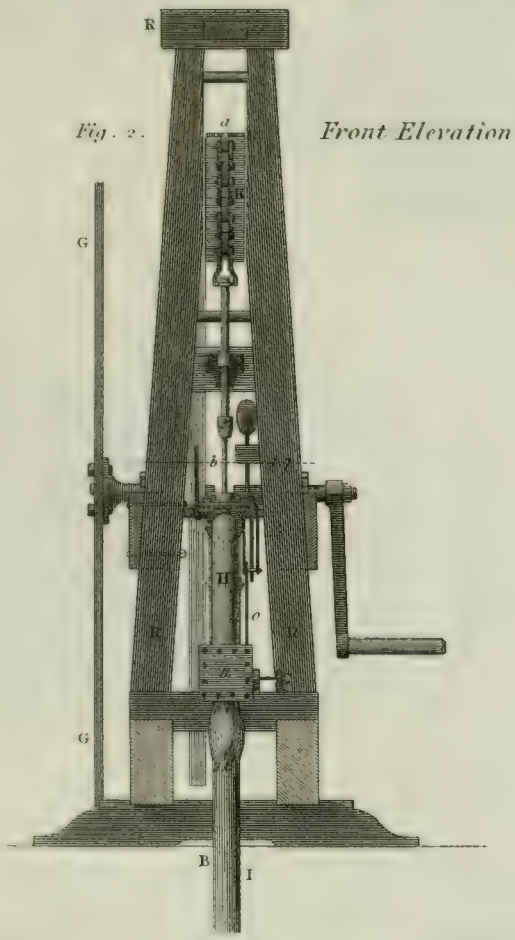
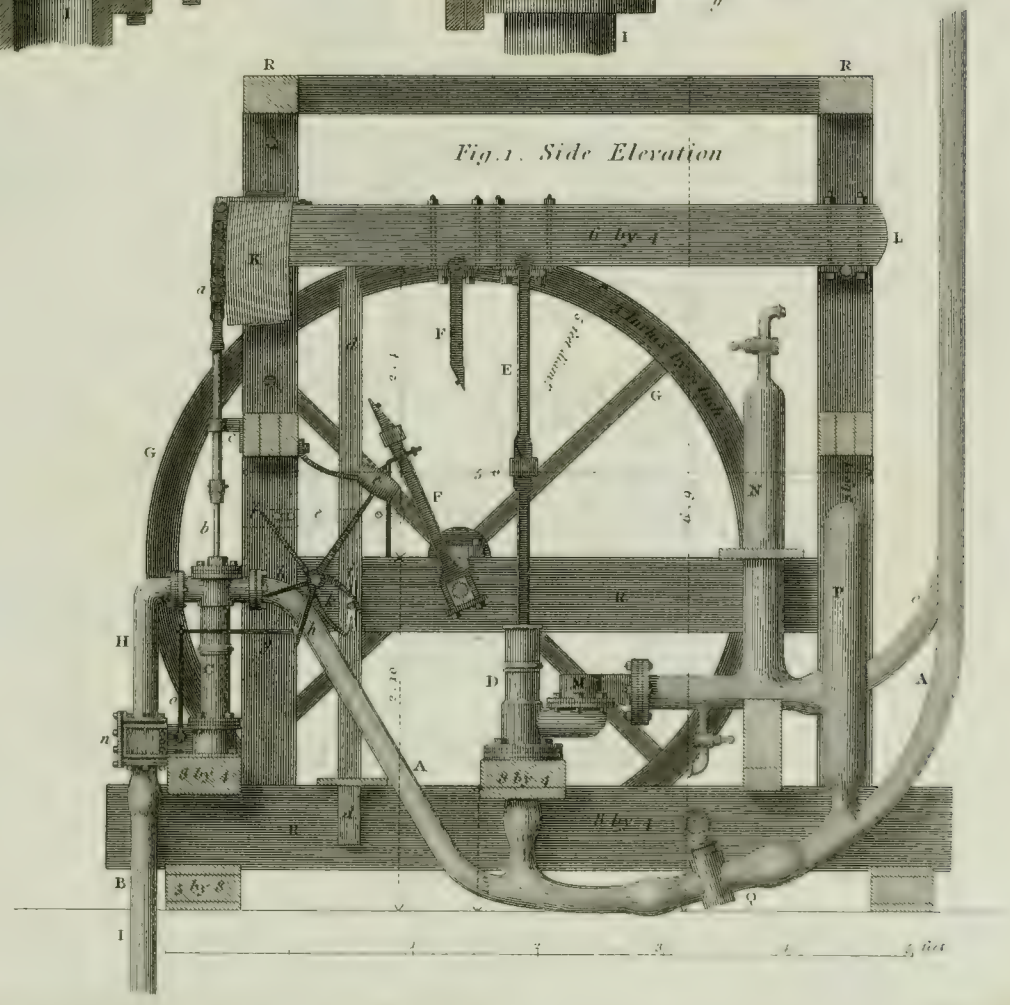


Fig. 1. Side Elevation



J. Farey delin.

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Engraved by W. Lowry

The STANHOPE or IRON PRESS.

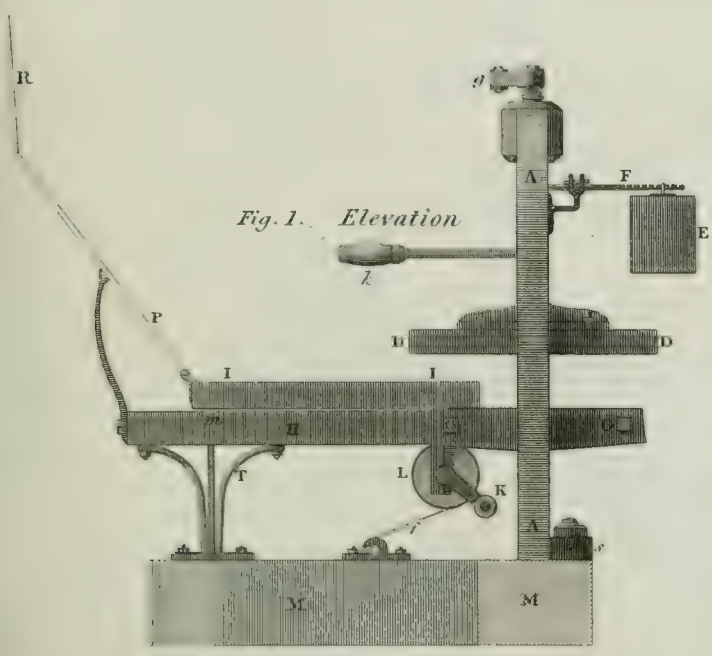


Fig. 1. Elevation

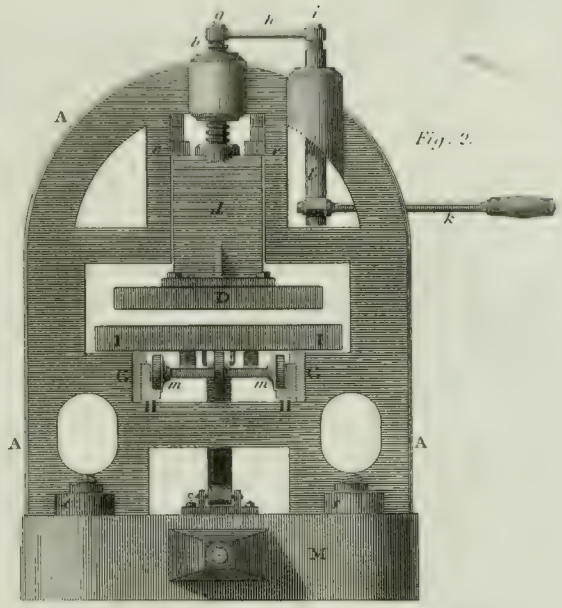


Fig. 2.

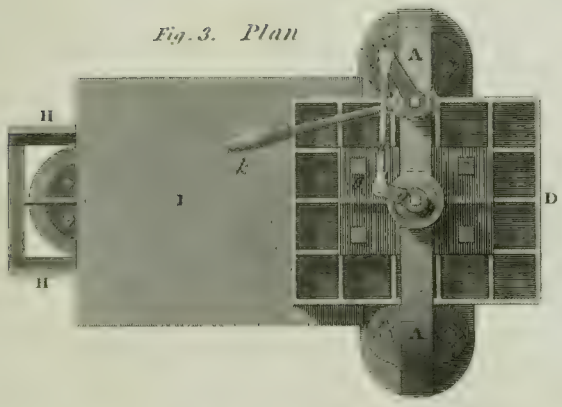


Fig. 3. Plan

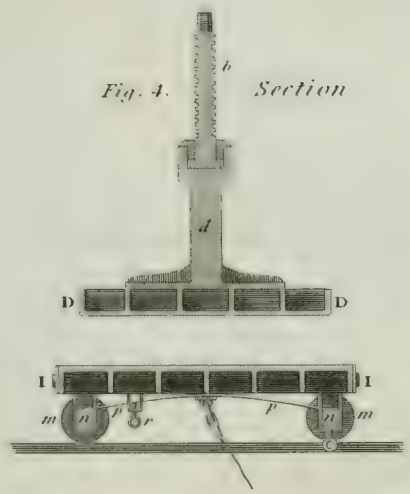
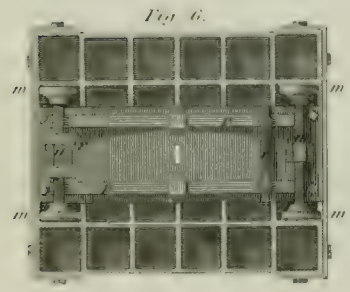


Fig. 4. Section



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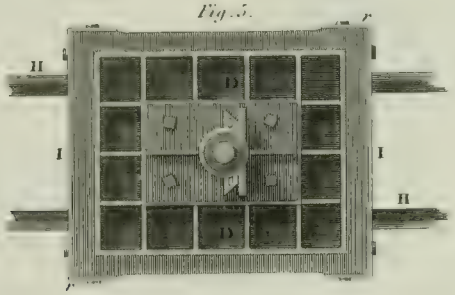
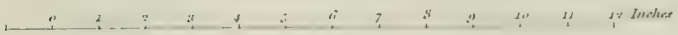


Fig. 5.

J. Farey delin. Published as the Act directs, 1813, by Longman Hurst, Rees, Orme & Brown Paternoster Row. Lowry sc

Mr. Bramah's Bank note Printing machine.



Section

Fig. 1.

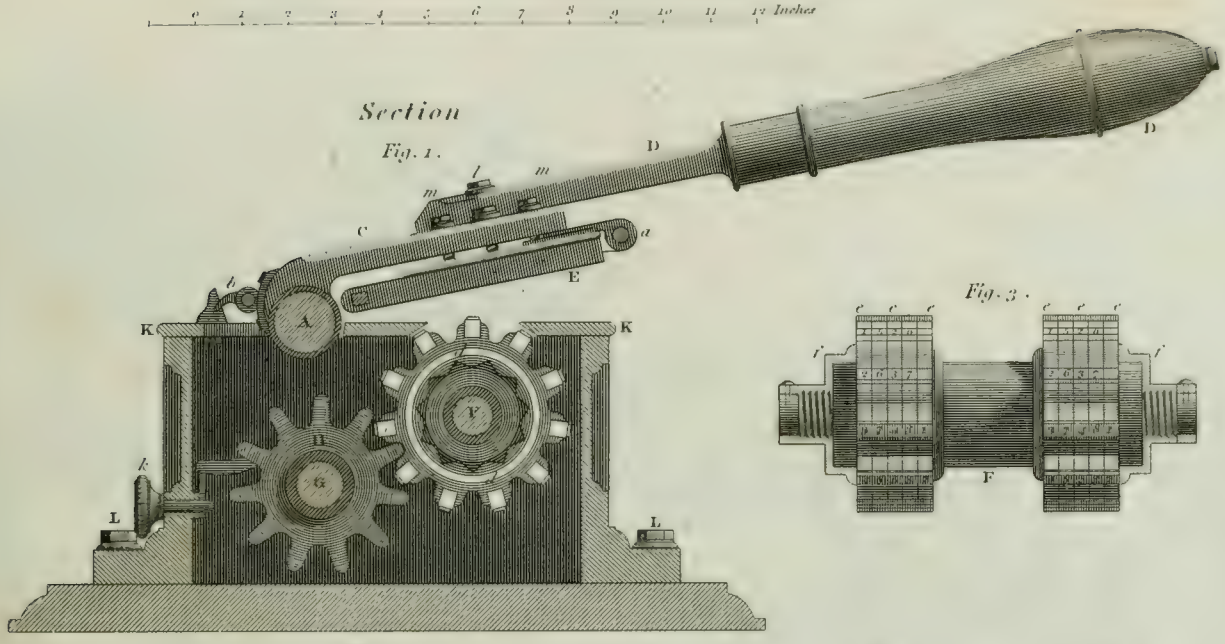
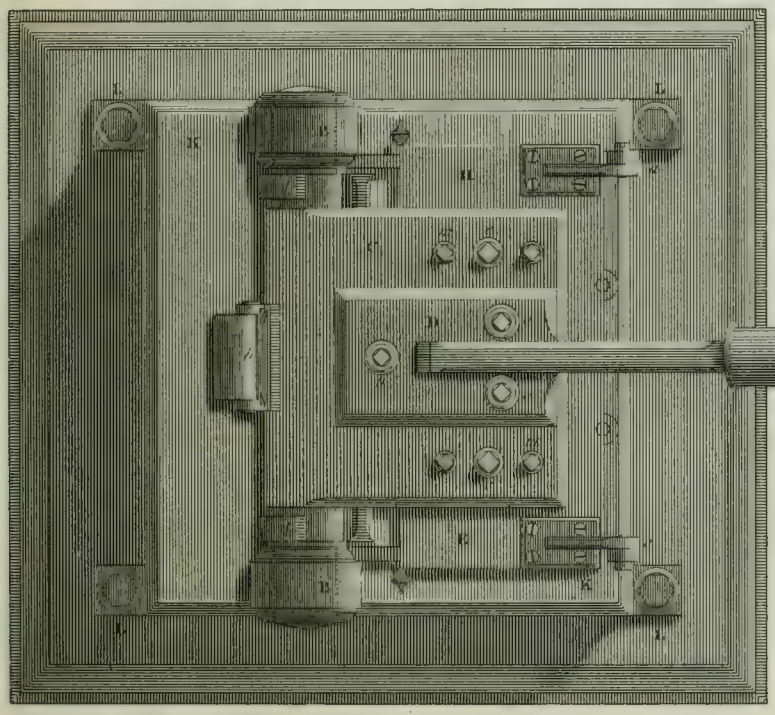


Fig. 3.

Plan



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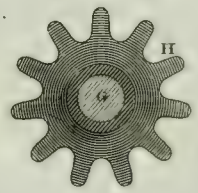

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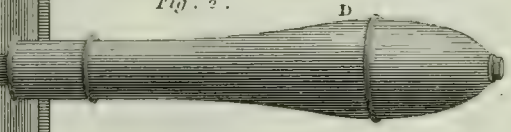

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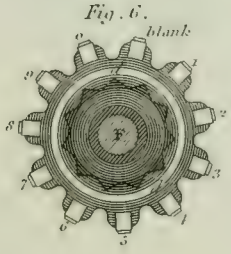

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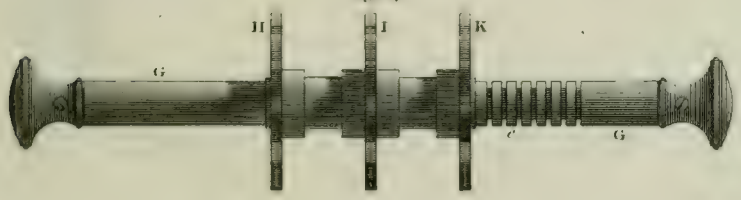
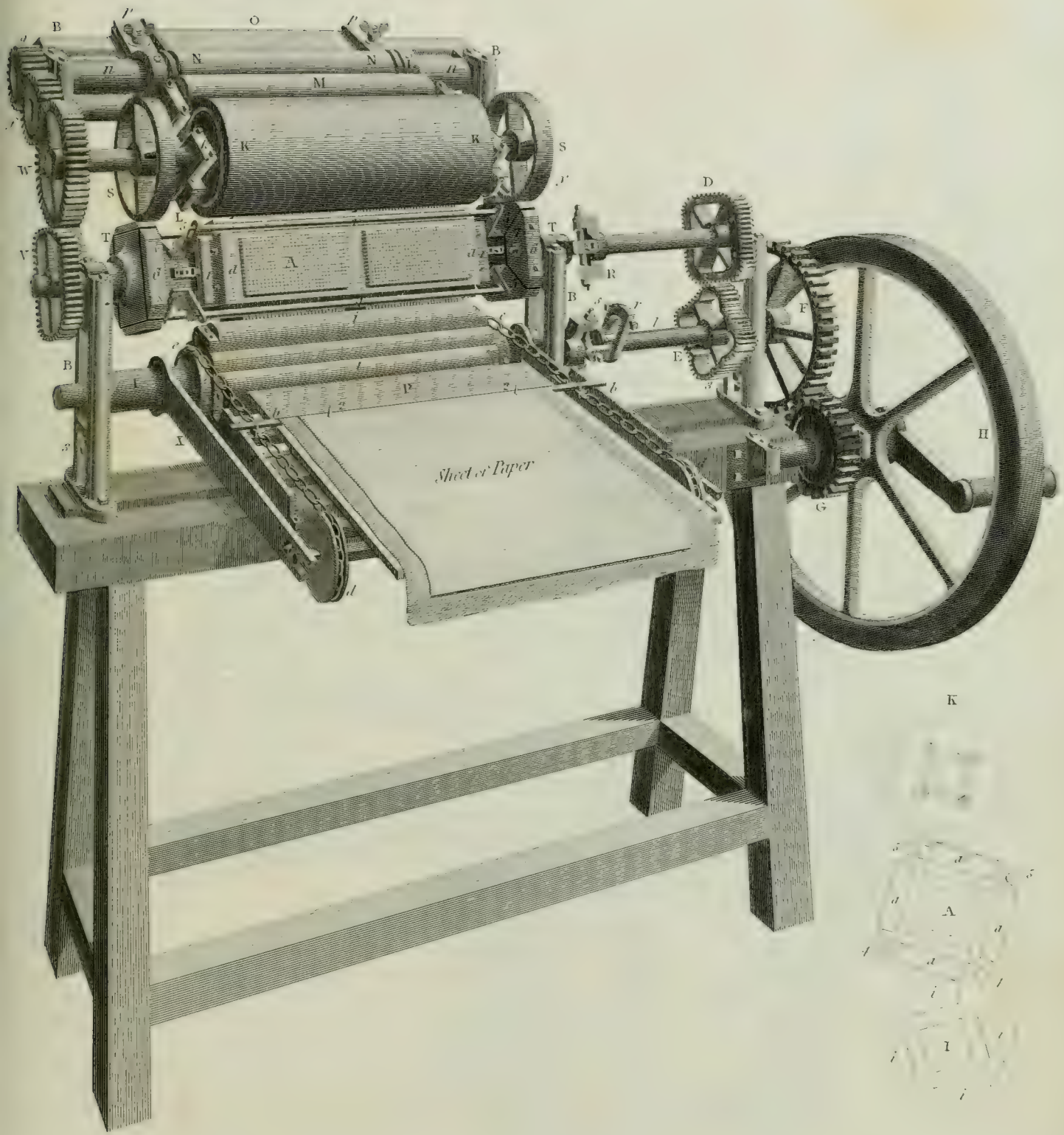


J. Farey delin. Published as the Act directs, 1812, by Longman, Hurst, Rees, Orme & Co. Paternoster Row. Engraved by W. Lowry.

PRINTING.

Messrs. Bacon & Donkins, PRINTING MACHINE.



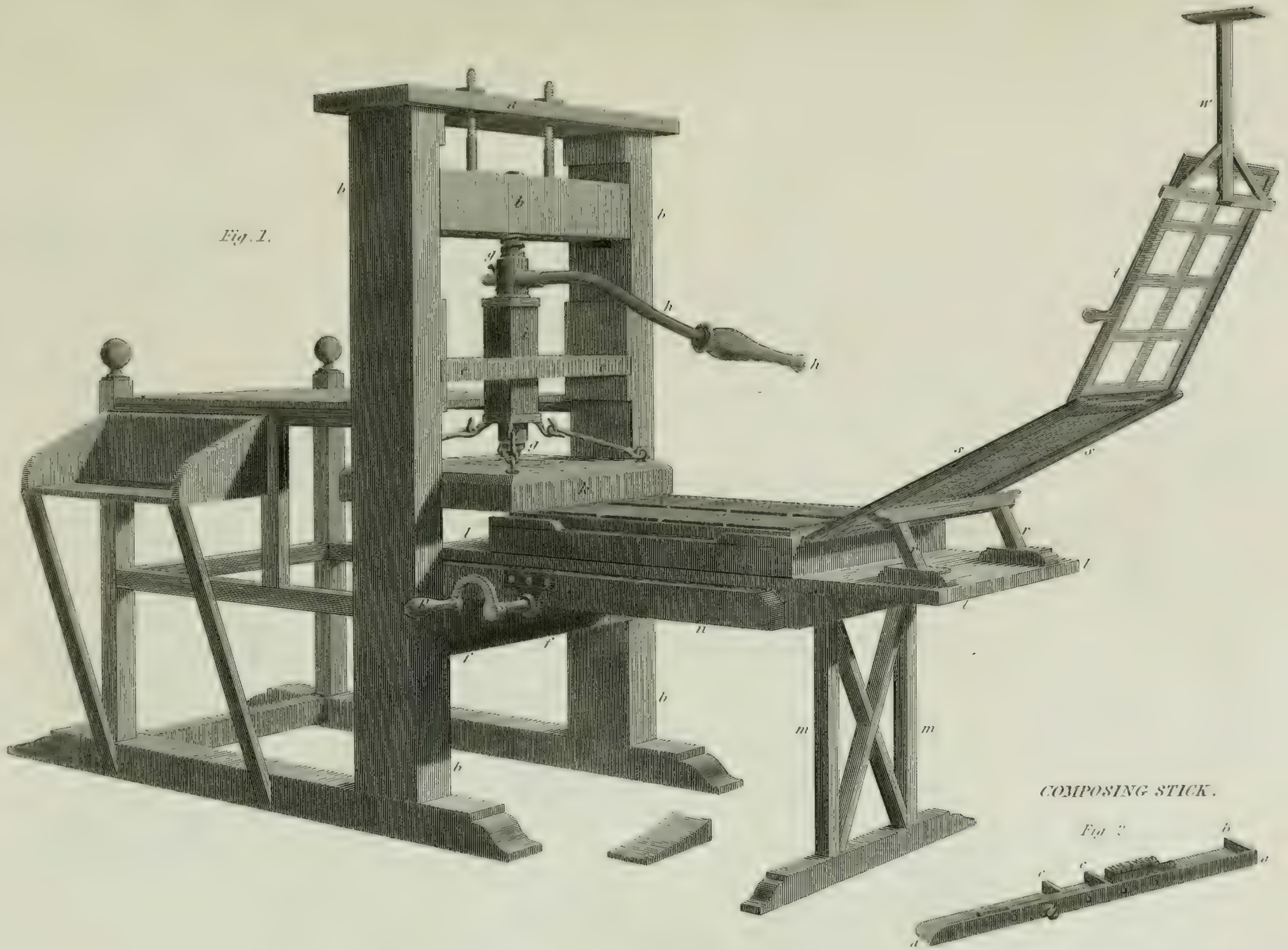
J. Farey, Junr. delin.

Published as the Act directs, 1819, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry, Sc.

Perspective View of a Common PRINTING PRESS.

Fig. 1.

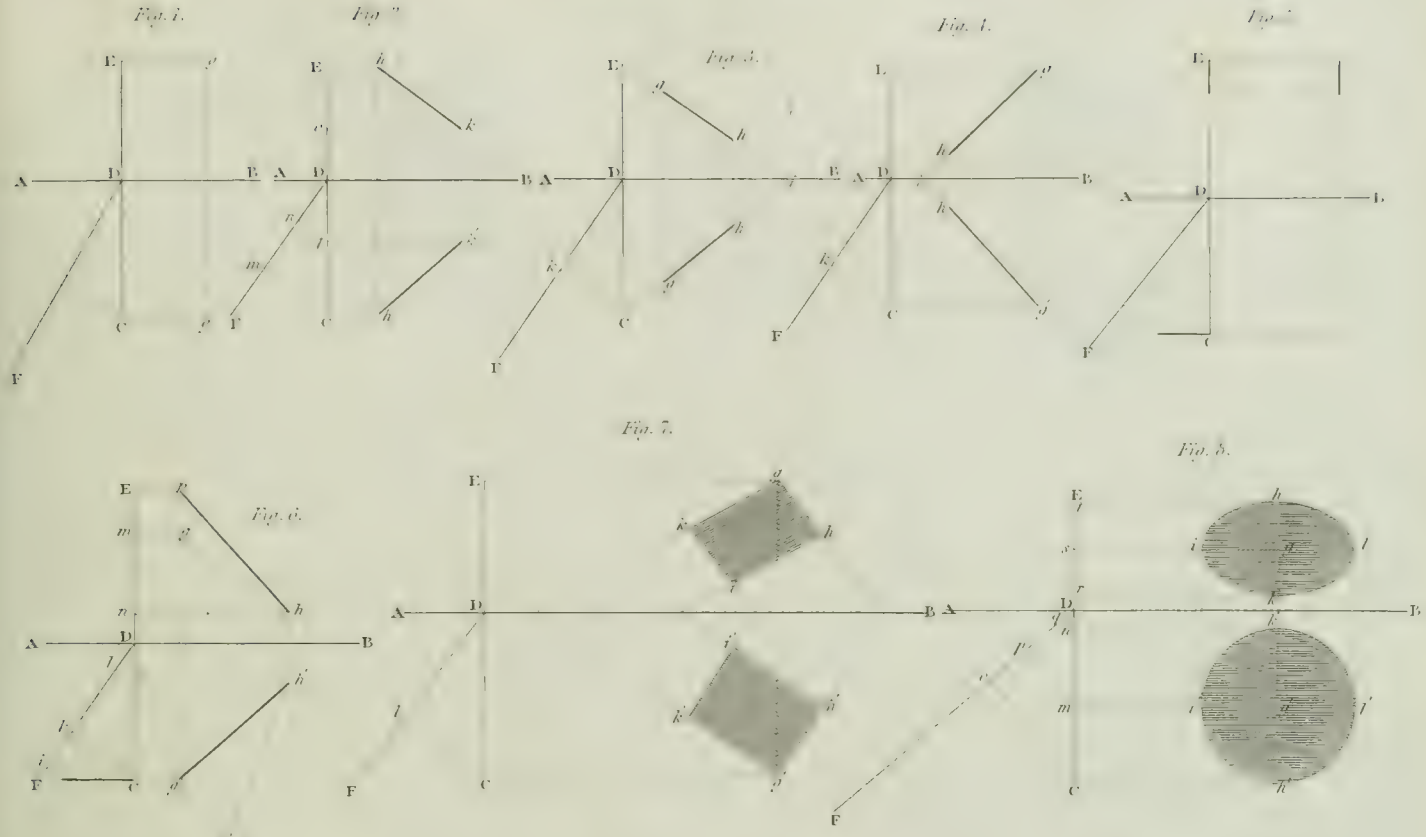


COMPOSING STICK.

Fig. 2.

Published as the Act directs 1818 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row

PROJECTION.

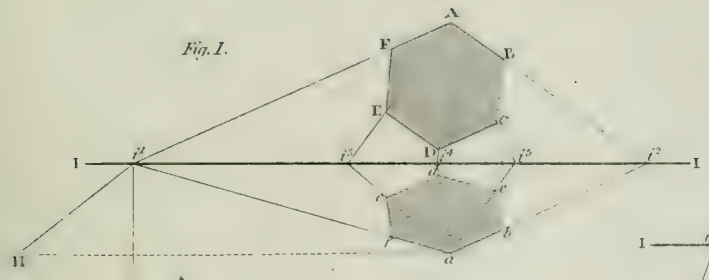


by P. Nicholson.

Published as the Act directs, 1809, by Longman, Hurst Rees, Orme & Brown, Paternoster Row, London.

Engraved by W. Lowry.

Fig. 1.



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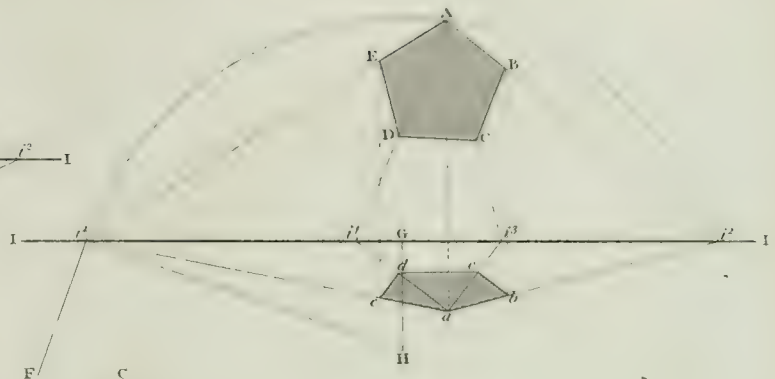

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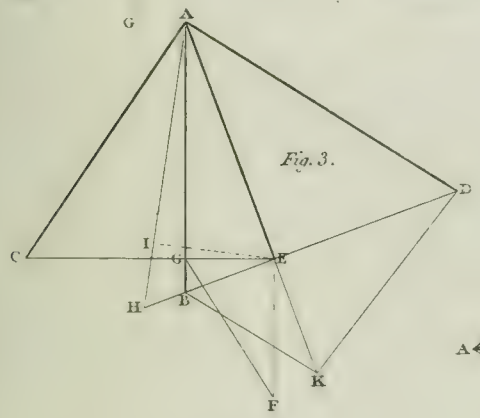

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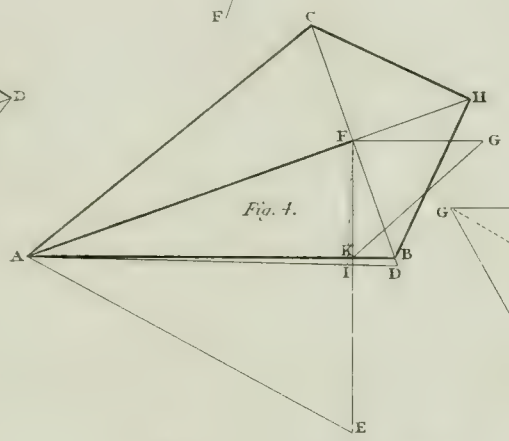

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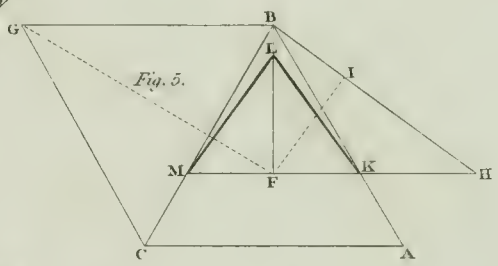

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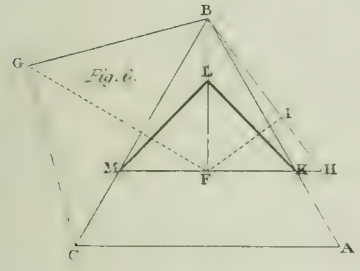
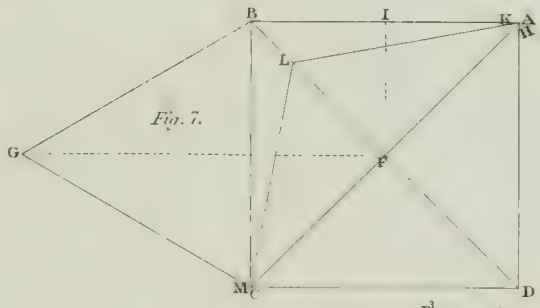


Fig. 7.



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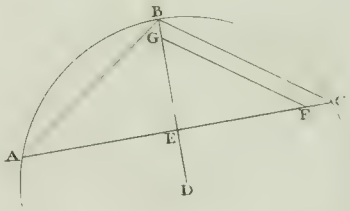

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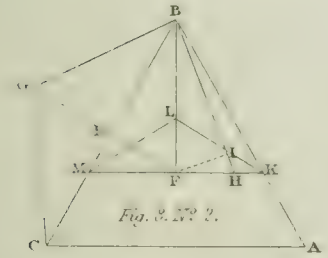

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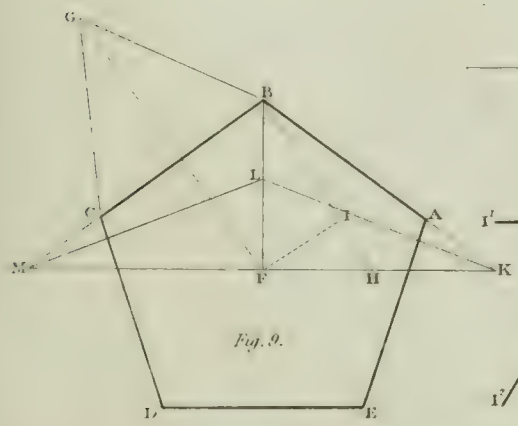

Fig. 10.

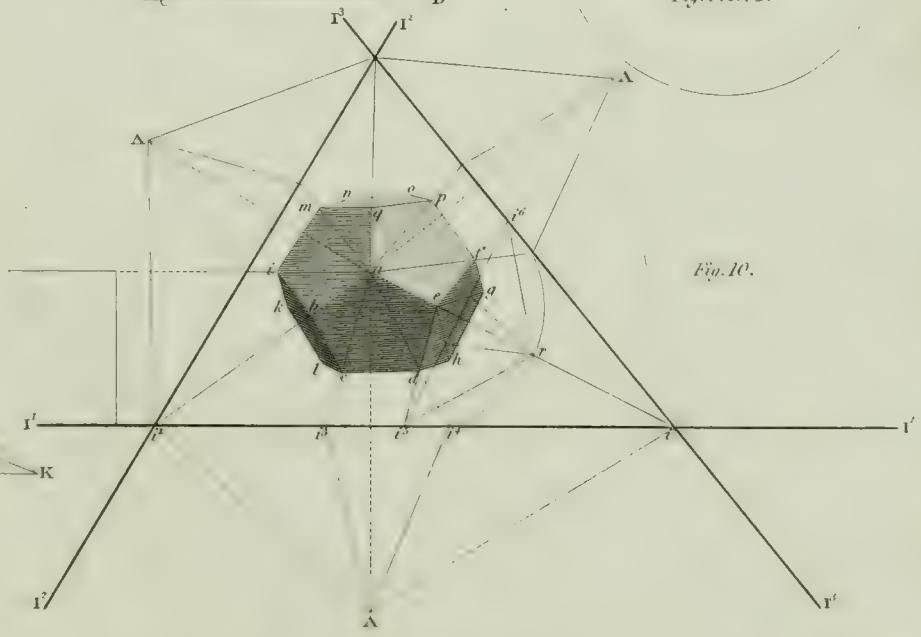

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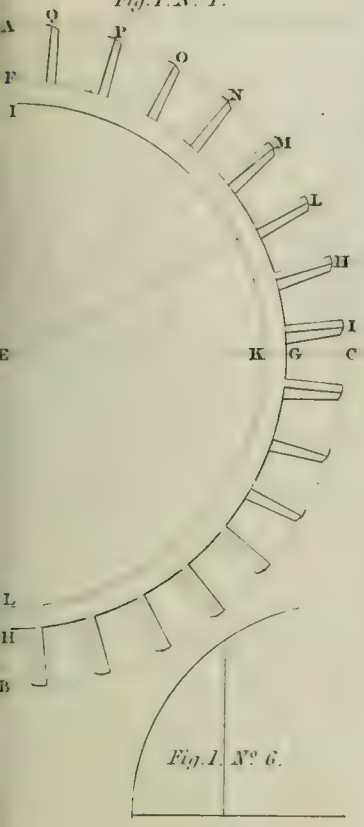
Fig. 1. N° 1.



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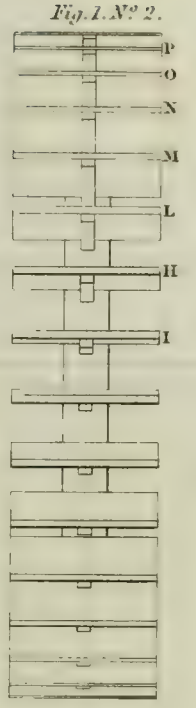

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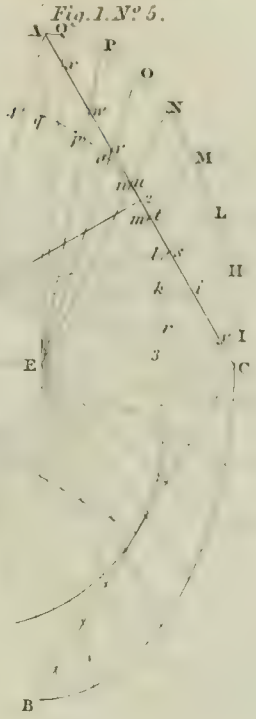

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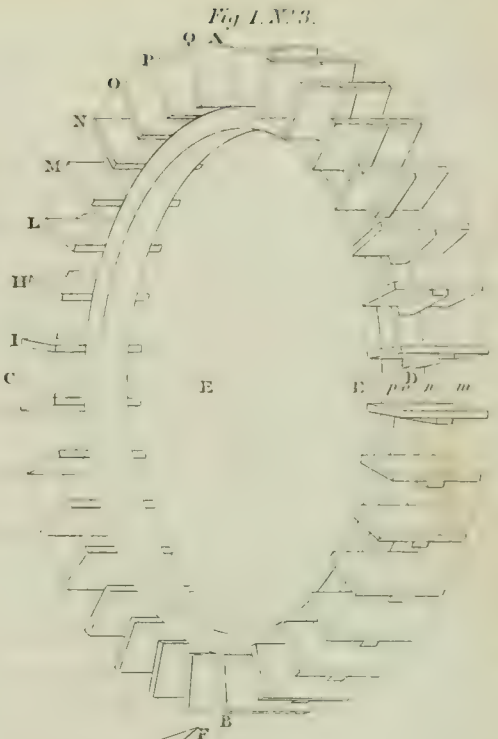
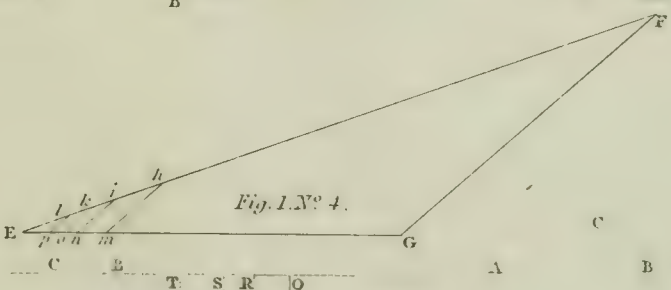


Fig. 1. N° 6.

Fig. 1. N° 4.



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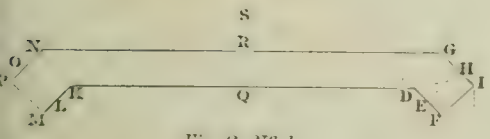

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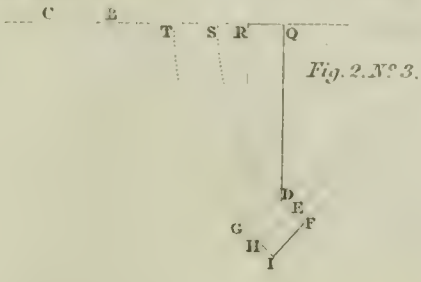

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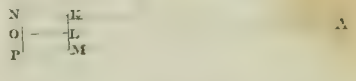

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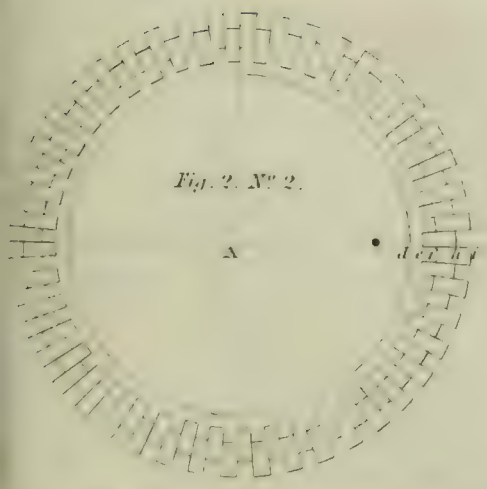

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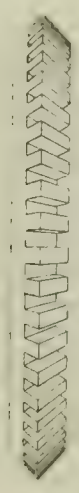

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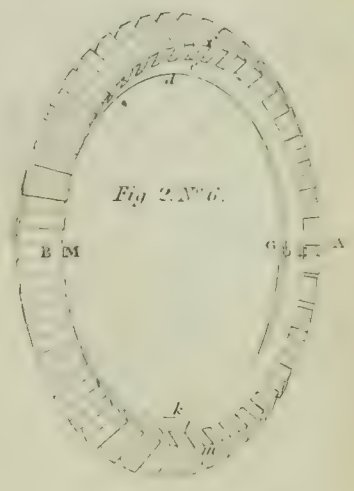
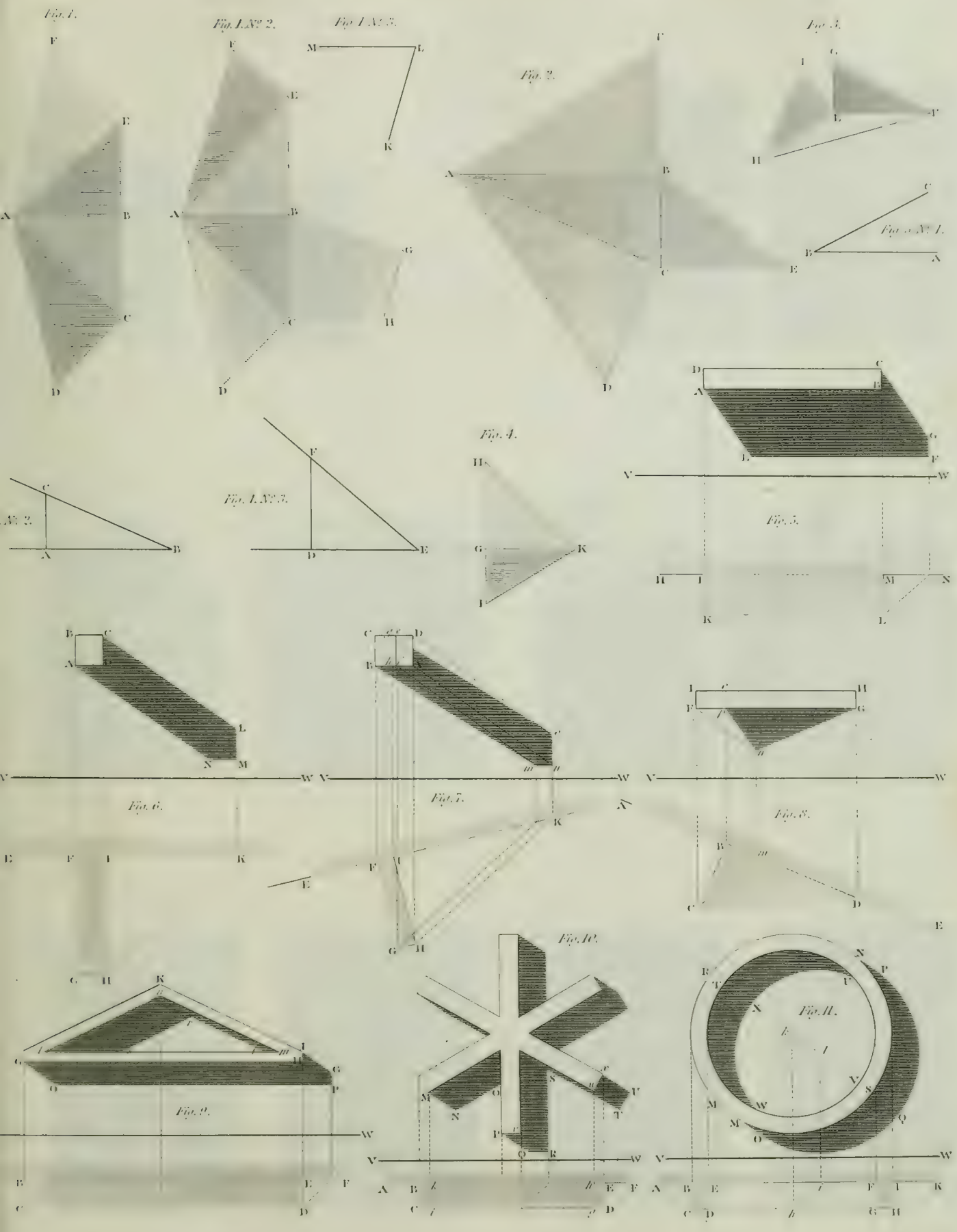


...wn and Drawn ... Nicholson.

Published as the Act directs, 1813, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by W. Lowry.



Published as the Act directs, 1813, by Longman Hurst Rees Orme & Brown Paternoster Row London.

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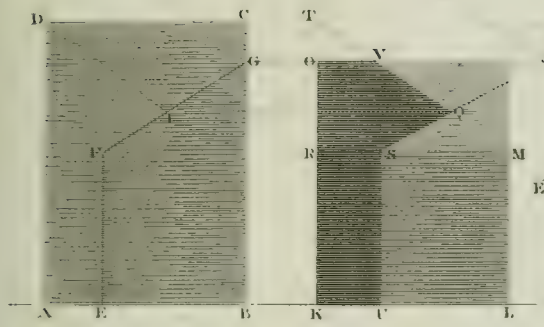

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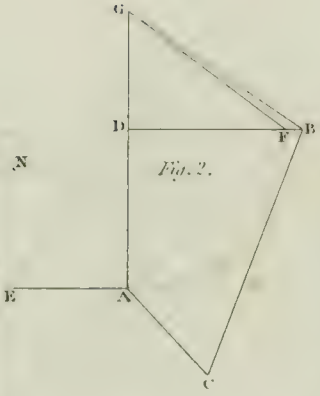

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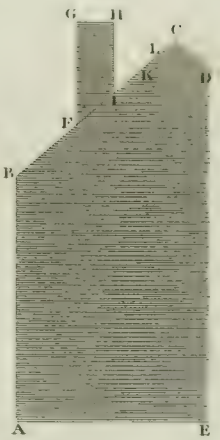

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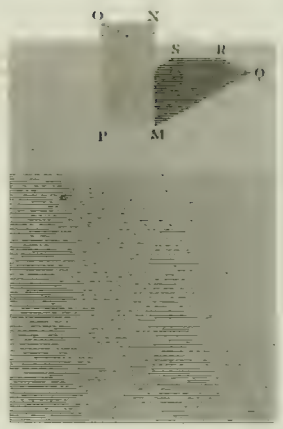

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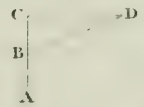

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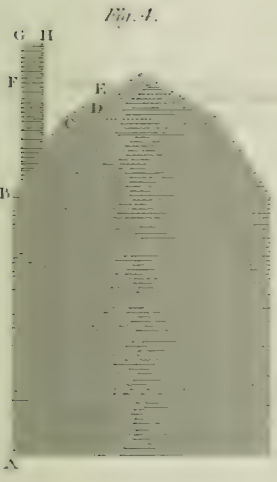

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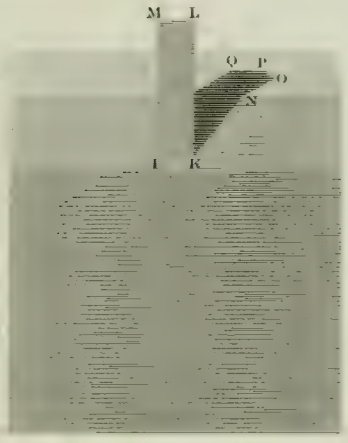

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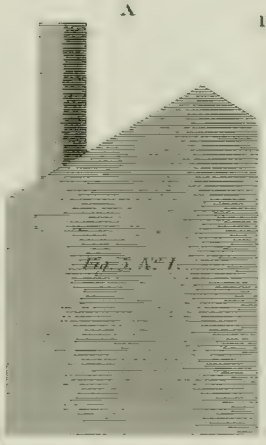

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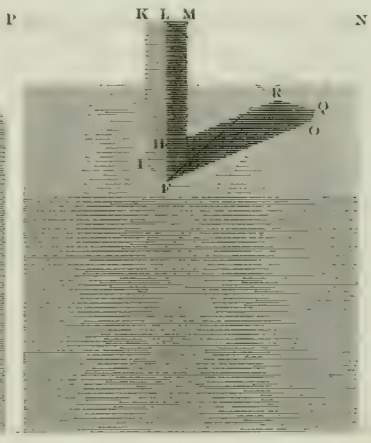

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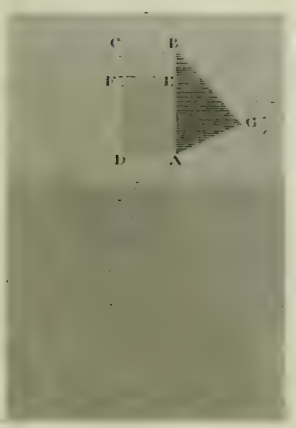

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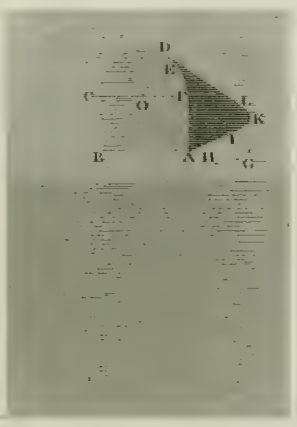

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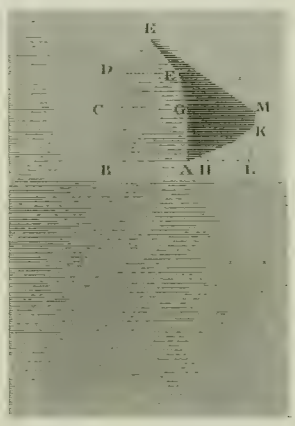

y P. Nicholson. Published as the act directs, 1813, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London. Engraved by W. Lowry.

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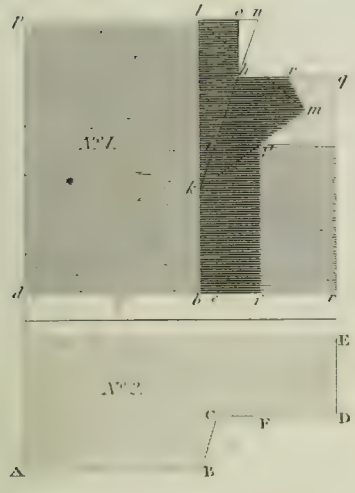

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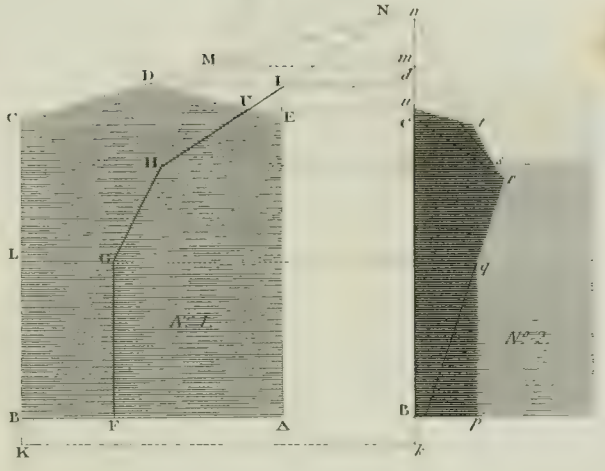

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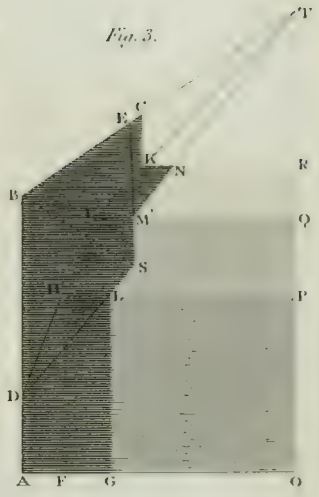

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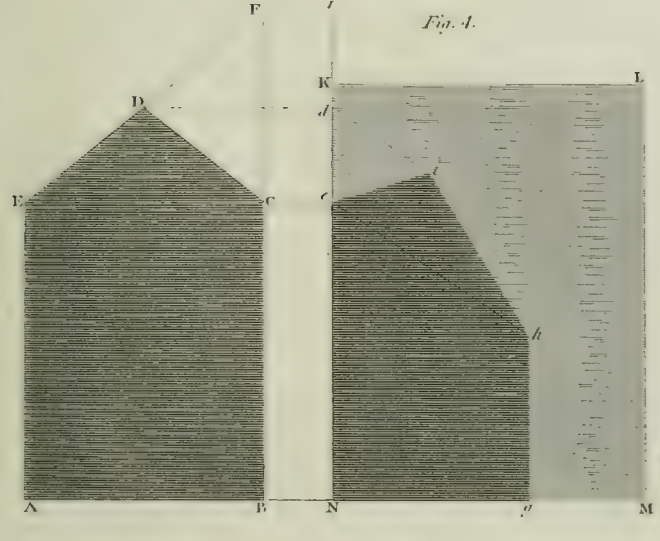

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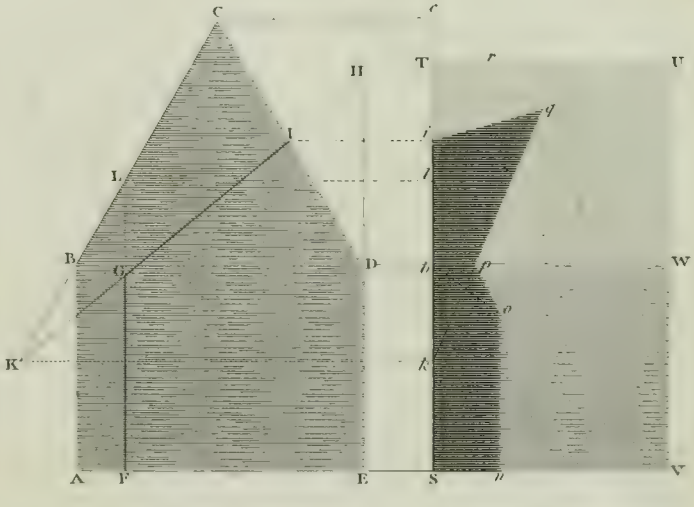

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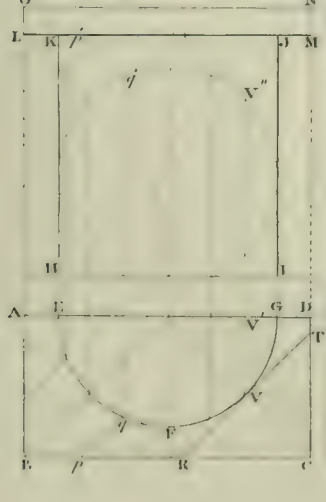

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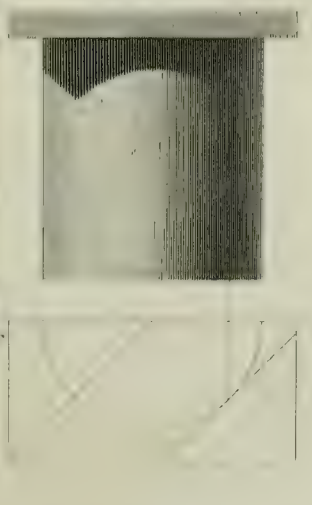

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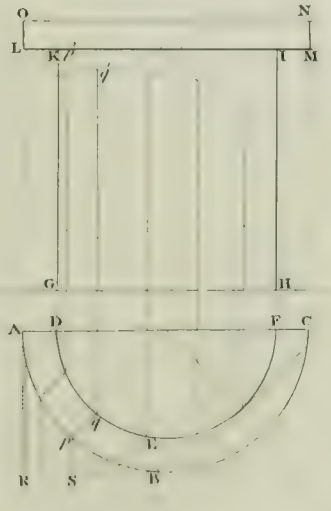

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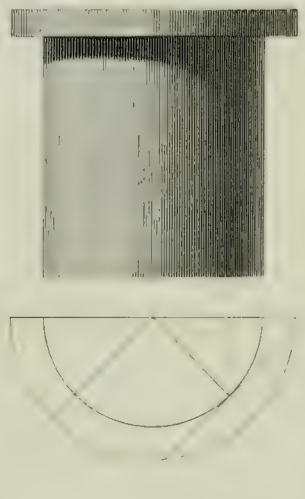

Published as the Act directs, 1803, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London.

PROJECTION.

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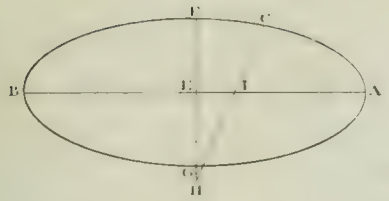

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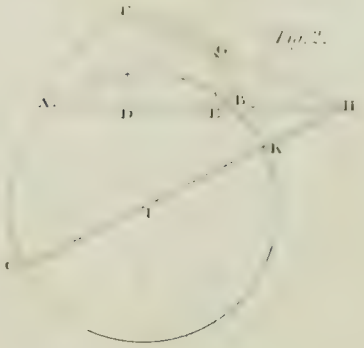

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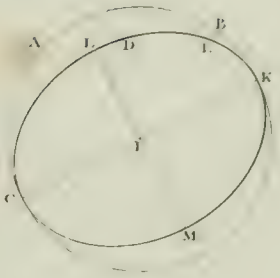

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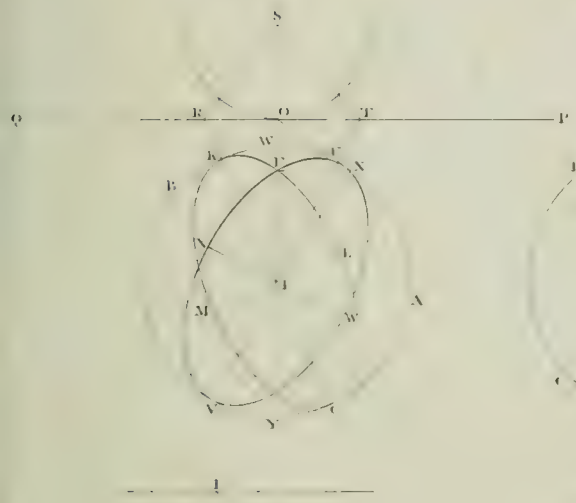

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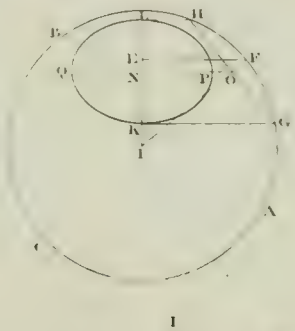

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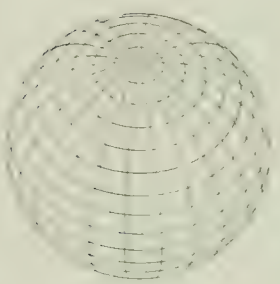

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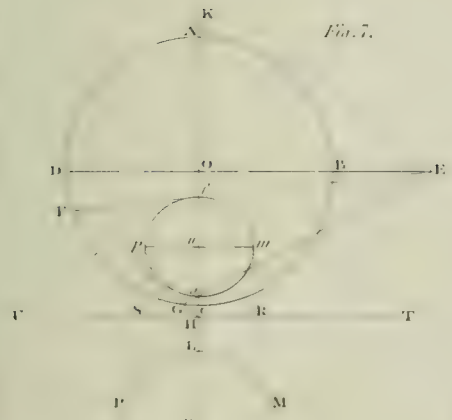

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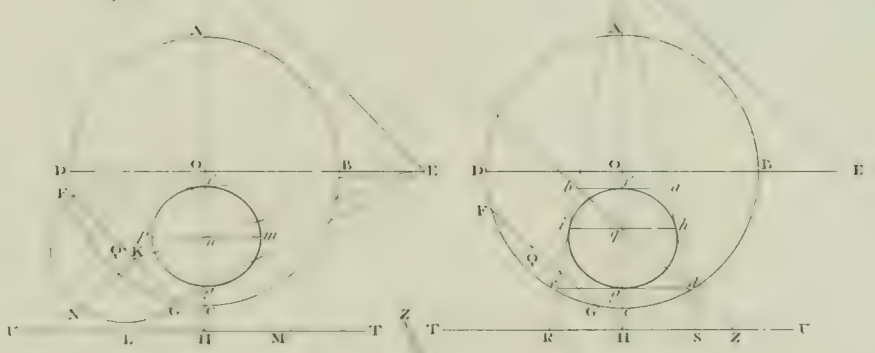

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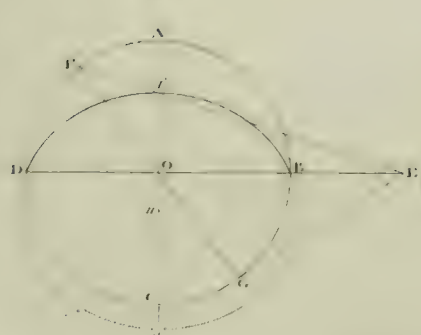

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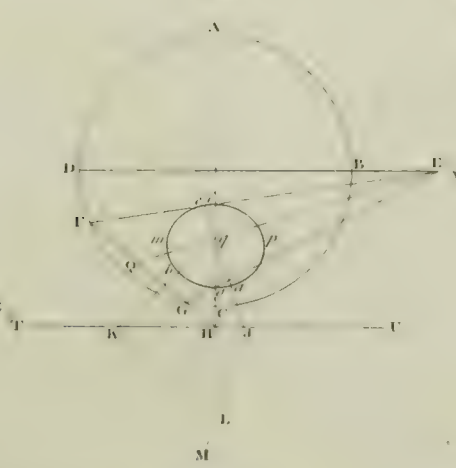

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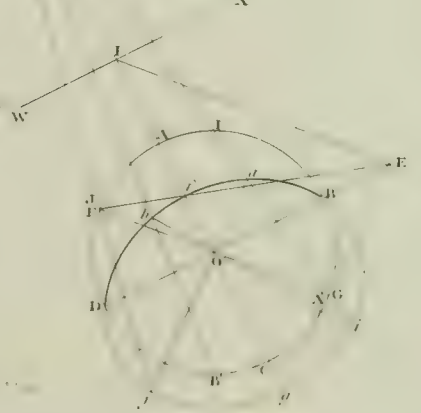
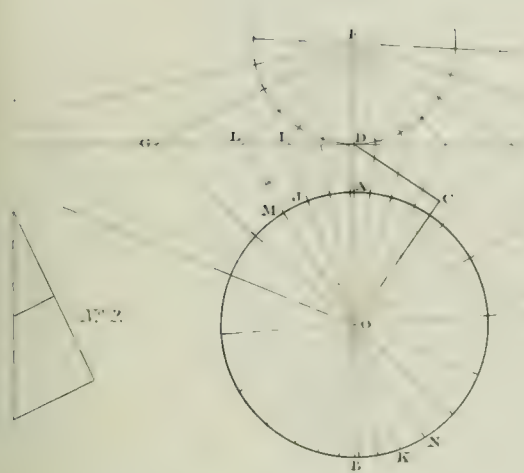


Principles of Perspective
to the projection of the
Sphere.

Published as the Act directs, 1811, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London.

Lowry sculp.

Fig. 1.



N° 2.

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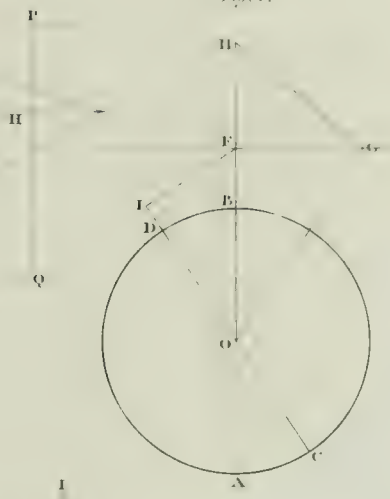

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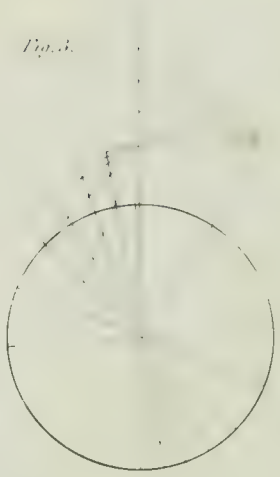

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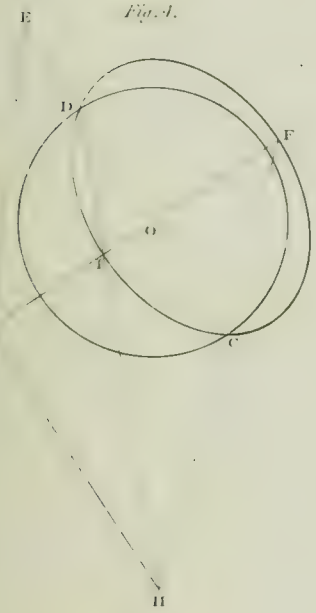

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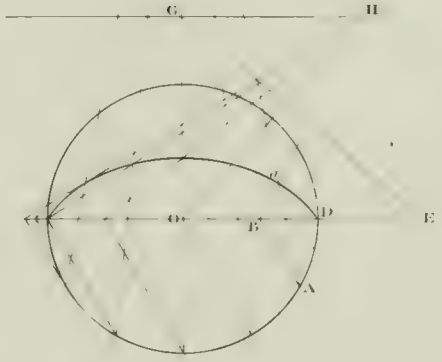

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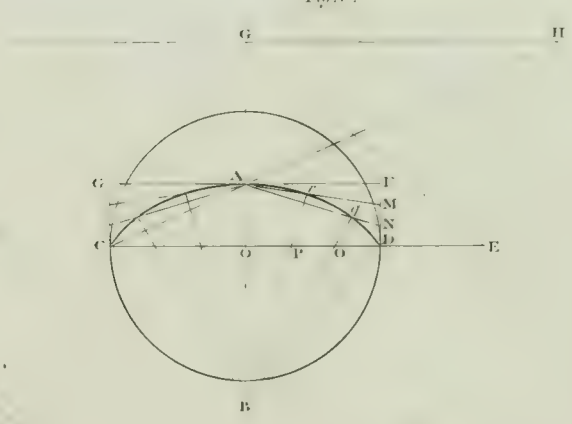

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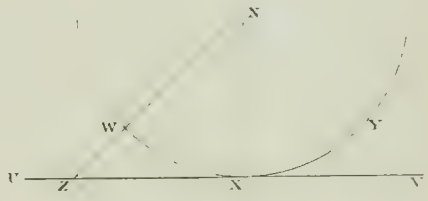

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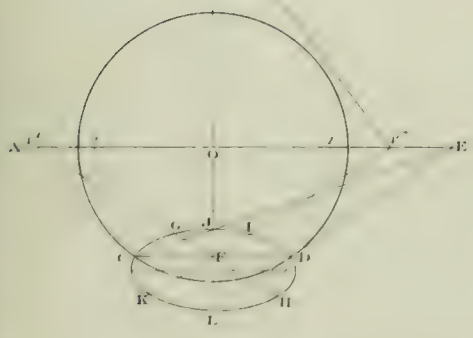

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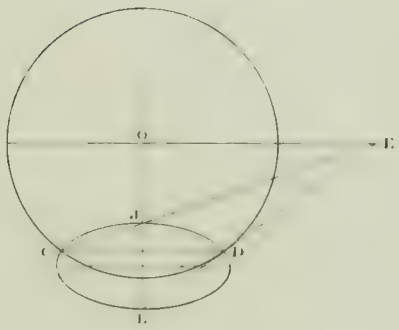
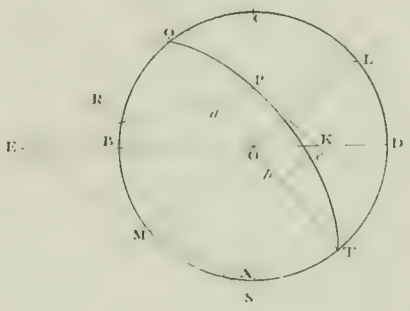


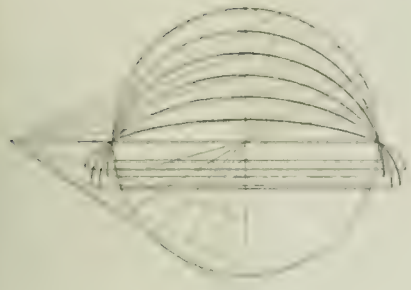


Brook Taylor's principles of Perspective first applied to the projection of the Sphere by P. Nicholson.

Published as the Act directs, 1815, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London.

Lowry sculp.

Fig. 1.



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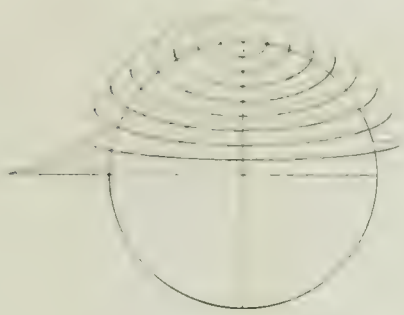

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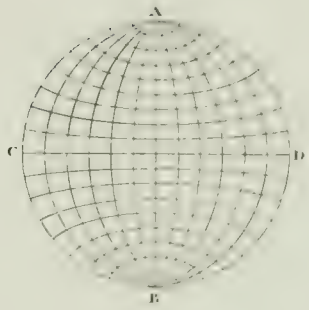
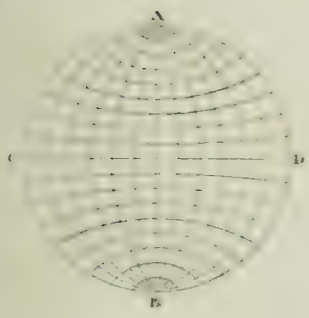


Fig. 4.



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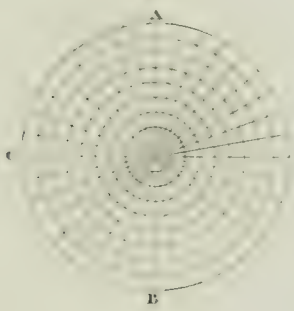

Fig. 6.

Fig. 10.

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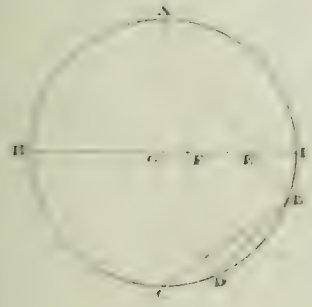

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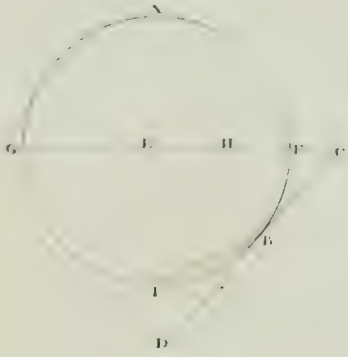

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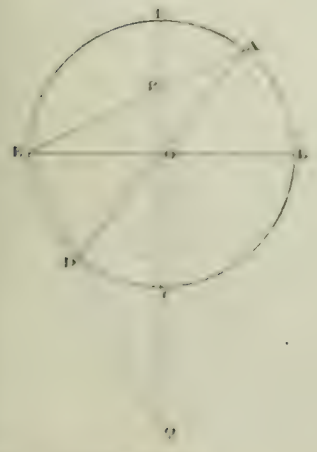

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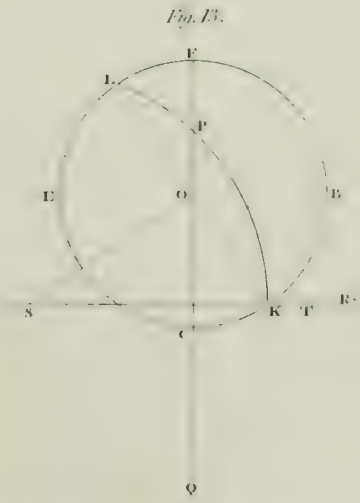

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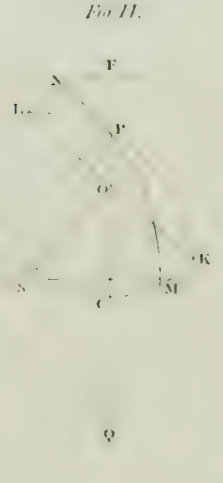

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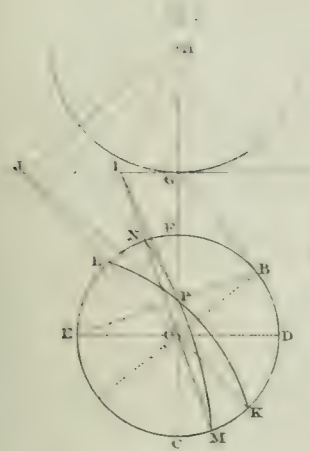

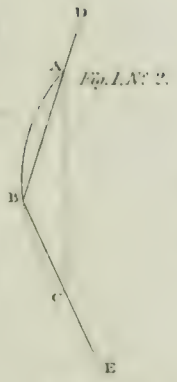

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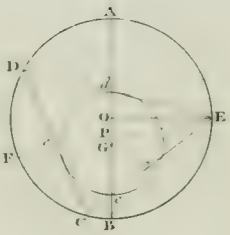

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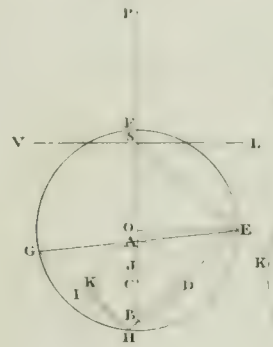

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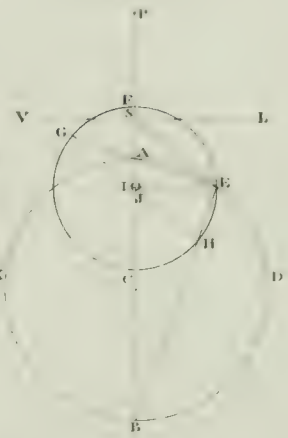

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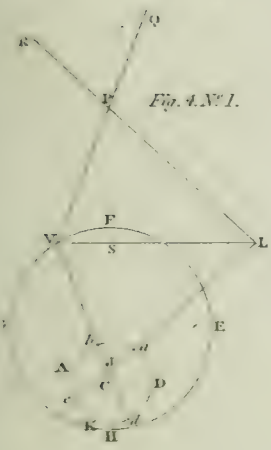

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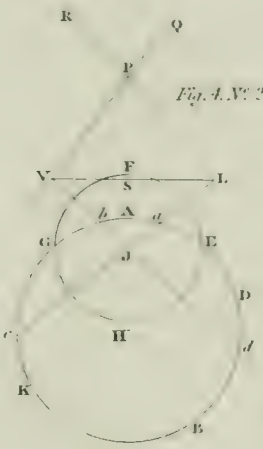

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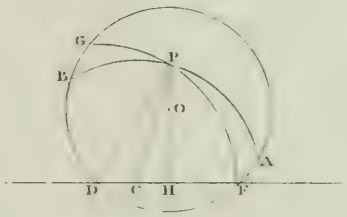

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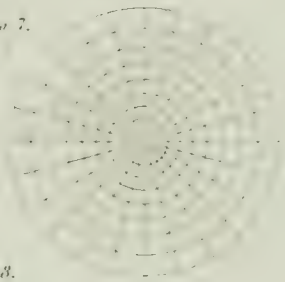

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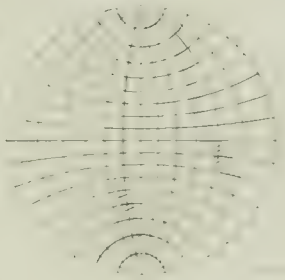

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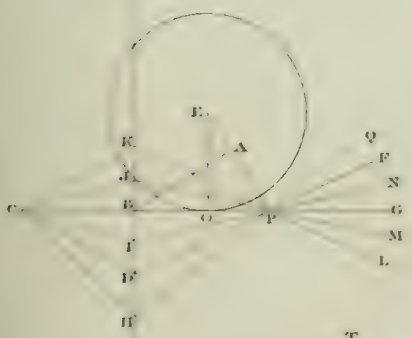

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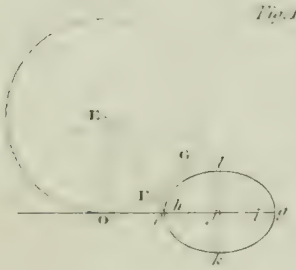

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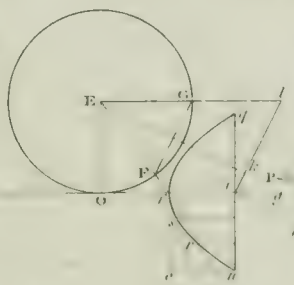

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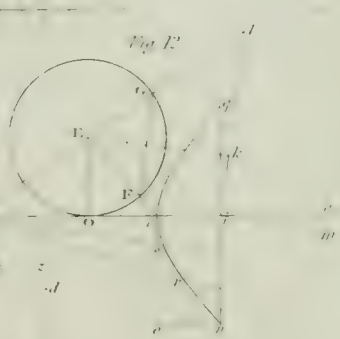

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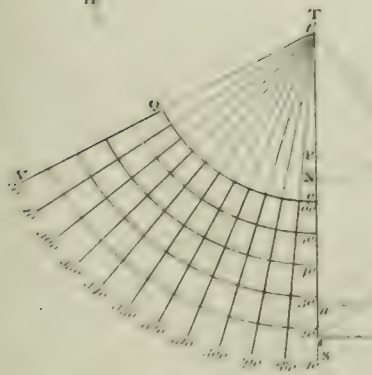

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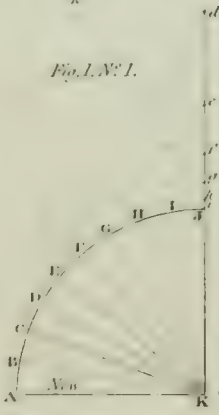

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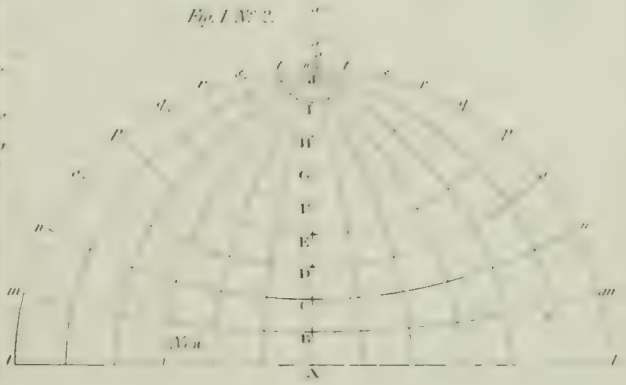

Fig. 1. N° 2.

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PROPORTIONAL COMPASSES.

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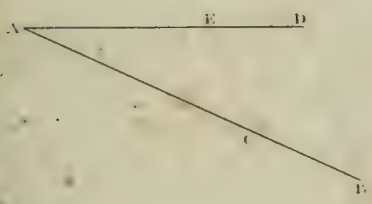

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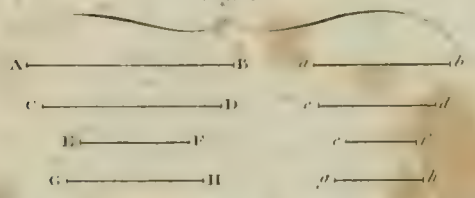

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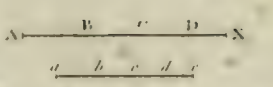

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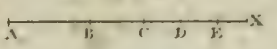

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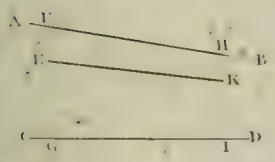

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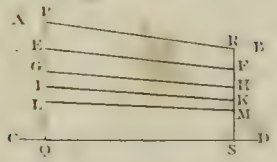

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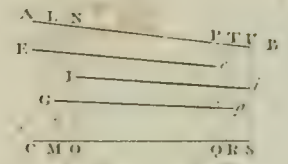

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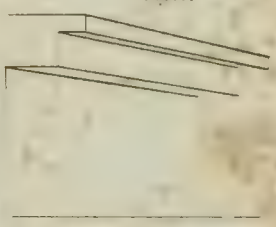

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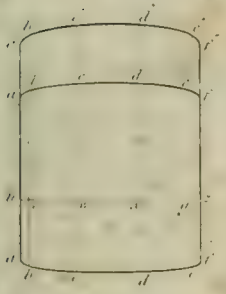

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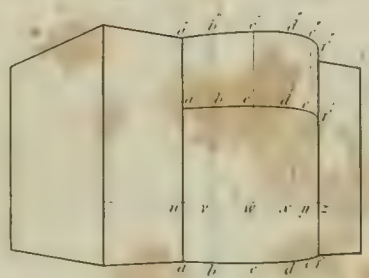

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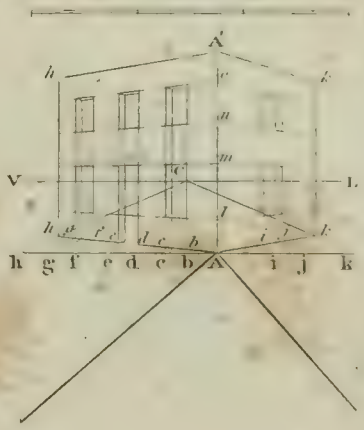

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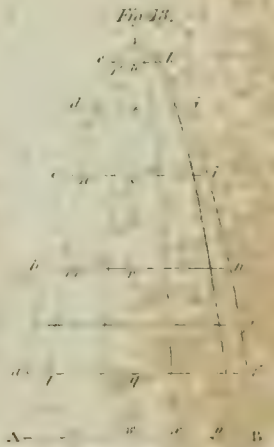

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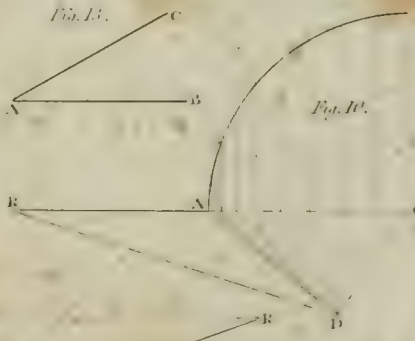

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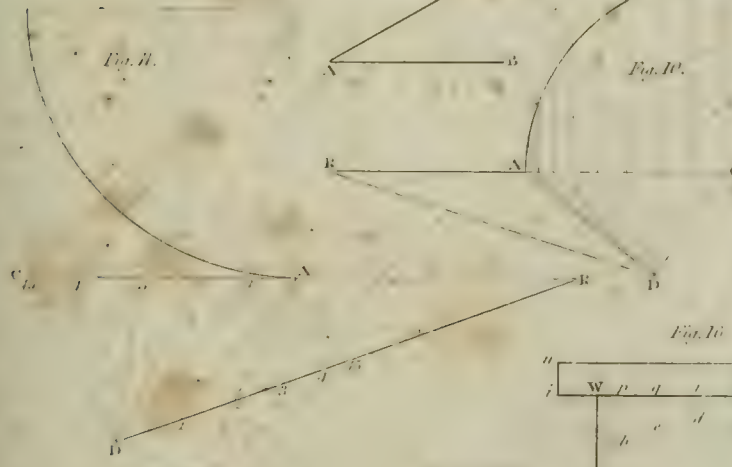

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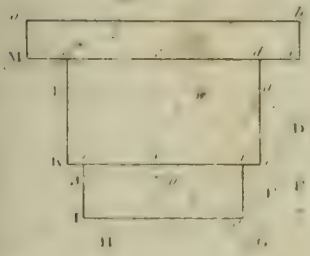

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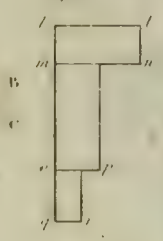

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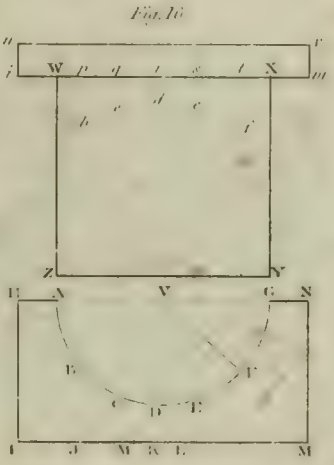

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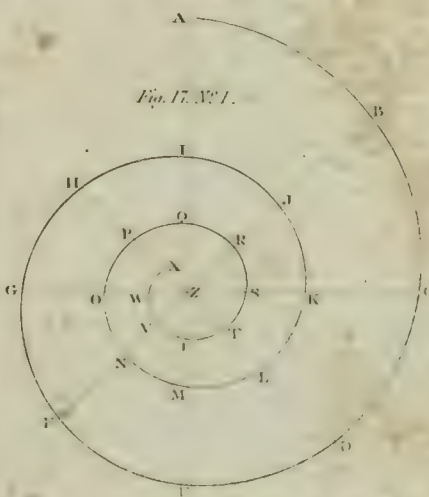

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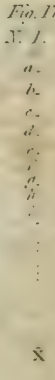

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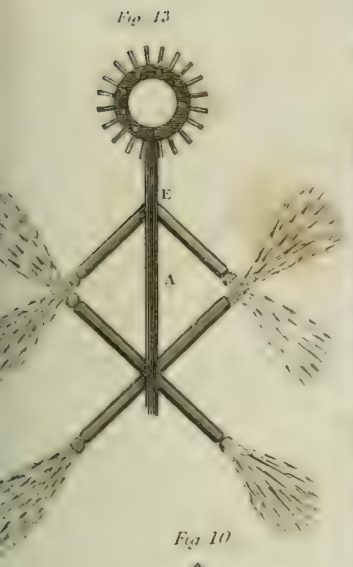
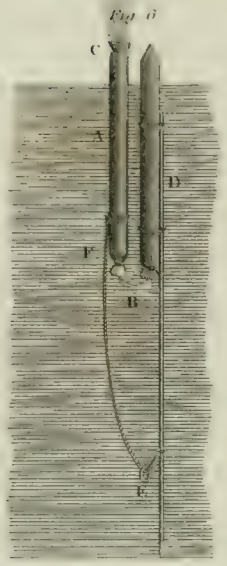
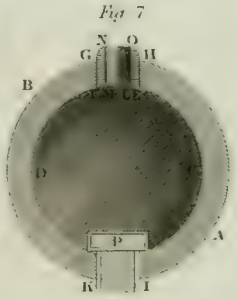
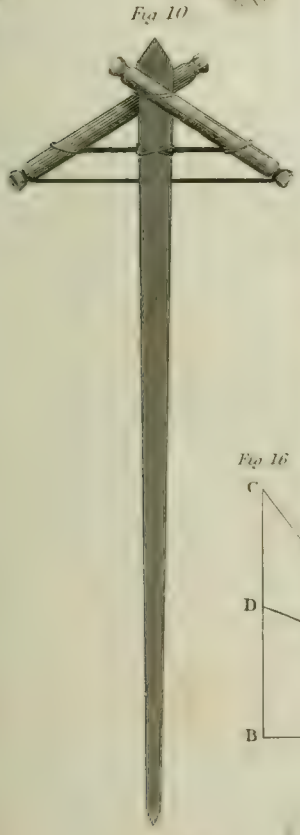
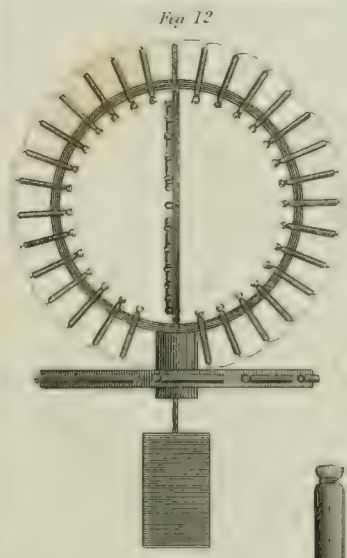
PYROTECHNY

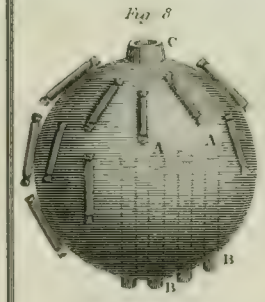


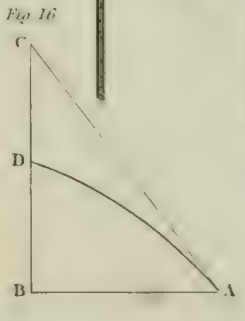


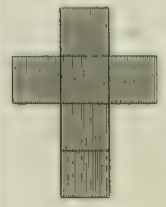


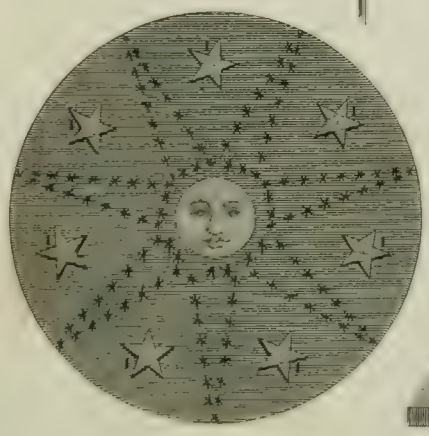


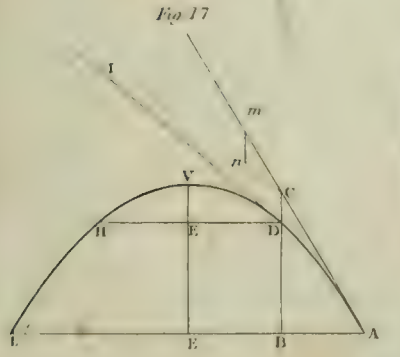


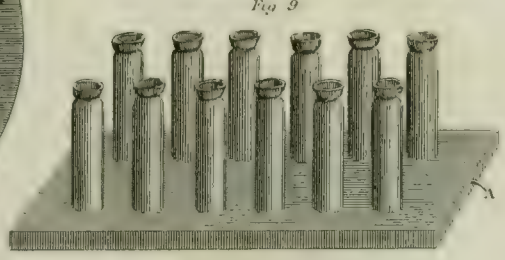












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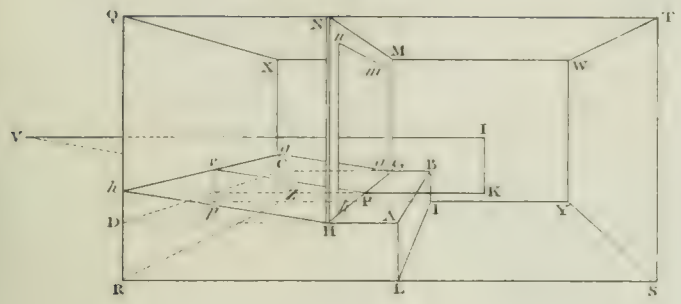
Lowry Sc

SCENOGRAPHY.

Fig. 1.



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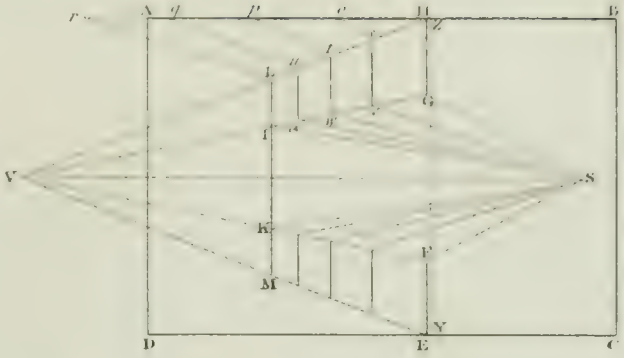

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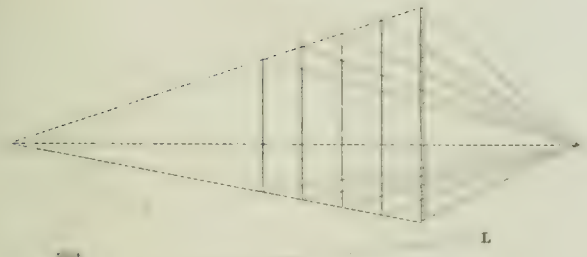

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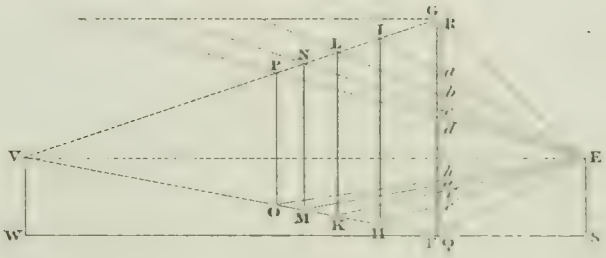

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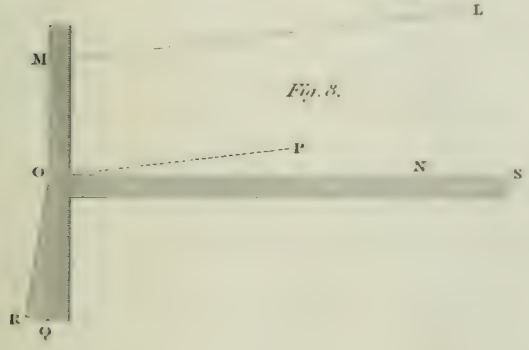

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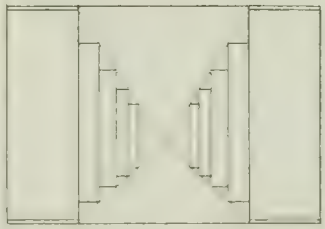

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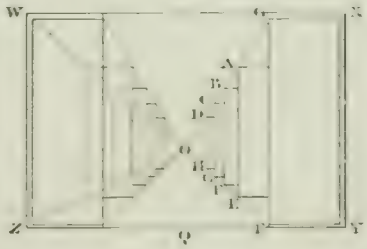

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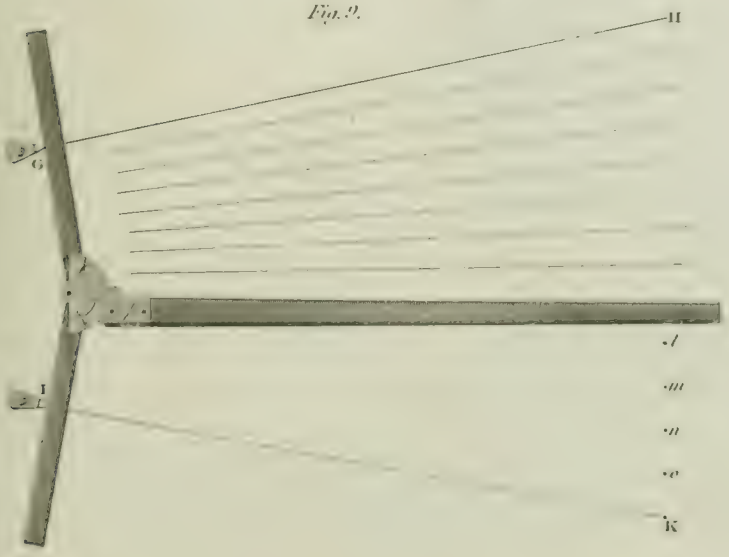

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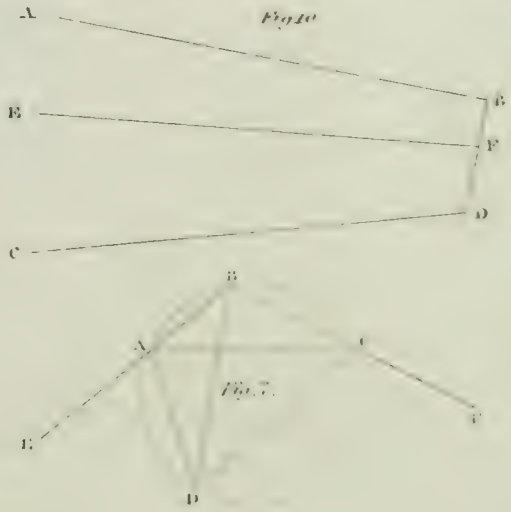


Published as the Act directs, 1815, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry sculp.

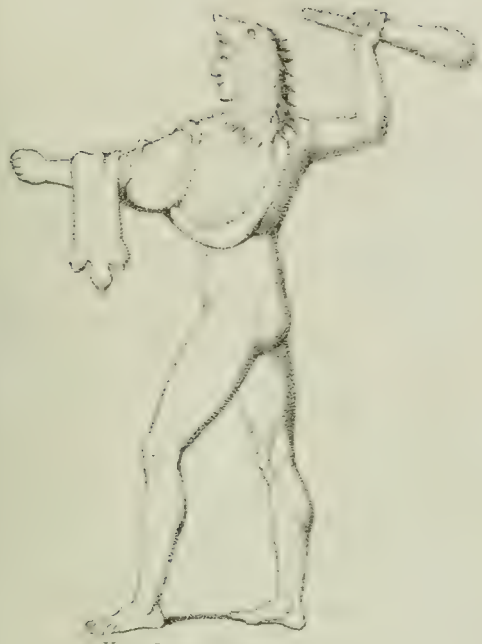
Drawn by H. Howard.

Engraved by R.E. [illegible].

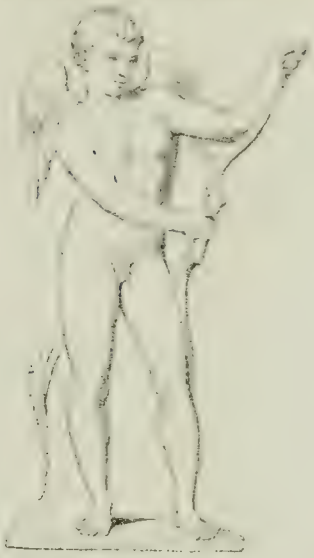
FROM AN ANTIQUE MARBLE GROUP OF CUPID & PSYCHE, IN THE CAPITOL.

THE GROUP OF CUPID & PSYCHE SEEN IN DIFFERENT VIEWS

STATUES.



Hercules of Dædalus, from a small Bronze.

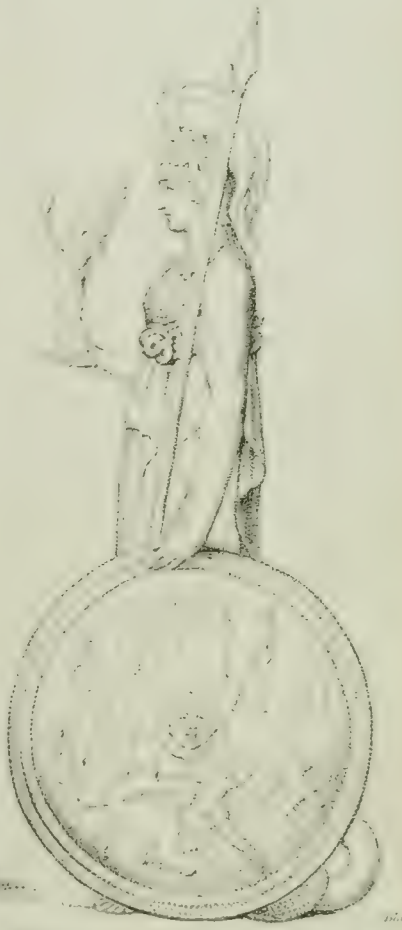


Cupid of Praxiteles, British Museum &c.

Minerva of Diipœnus & Scyllis, in the Villa Albani.

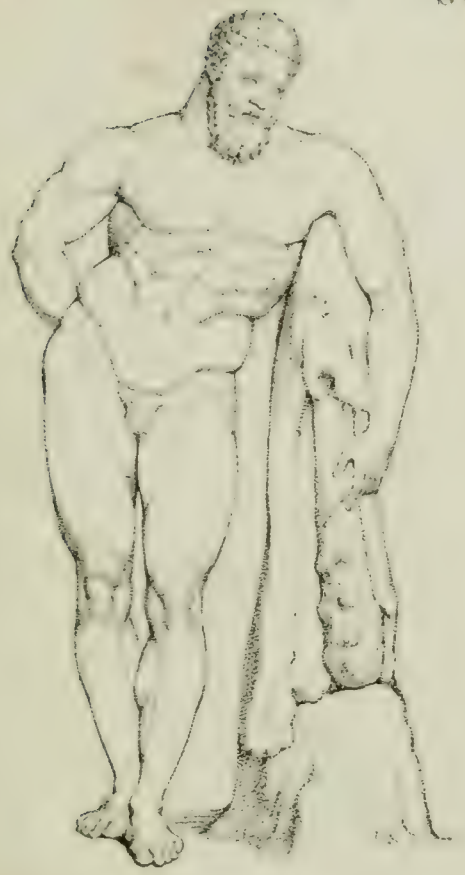
Venus of Praxiteles, Perriers Statues.

Jupiter Olympius. See Pausanias. Ancient Statues, Coins & Gems.

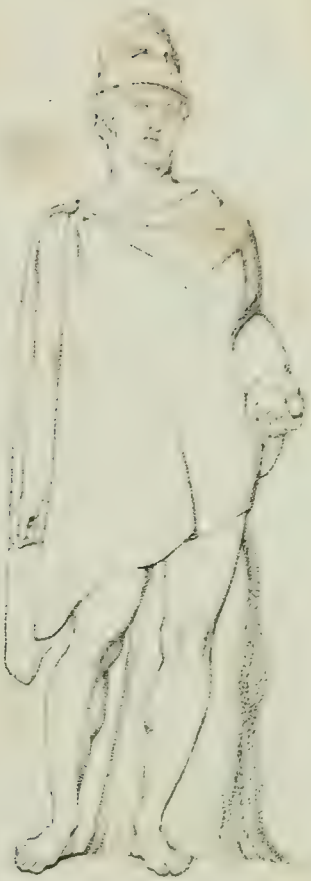


Minerva of the Acropolis in Athens. See Hunters Coins.

London Published as the Act directs Feb.y 1st 1809 by Longman Hurst Rees & Orme Paternoster Row.



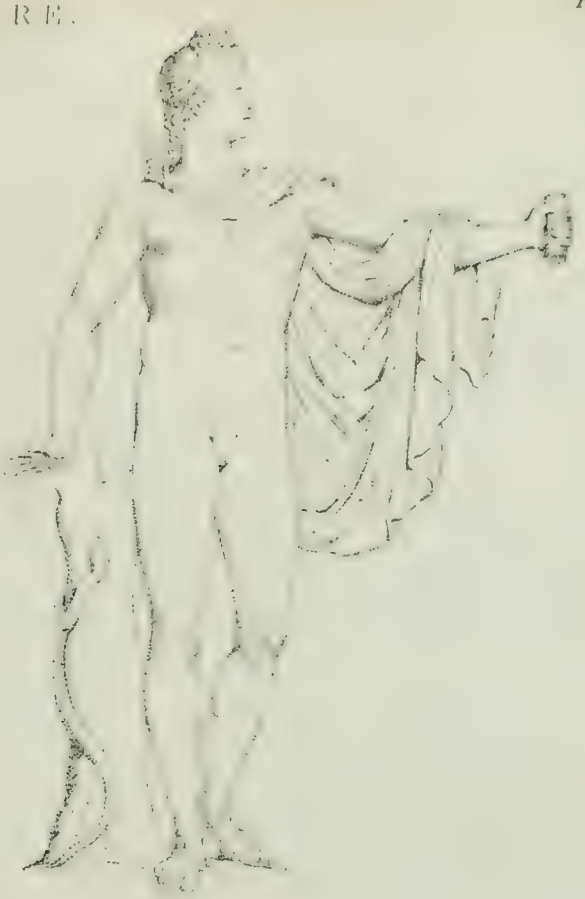
Hercules Farnese



Phocion

Dirce

Venus de Medicis

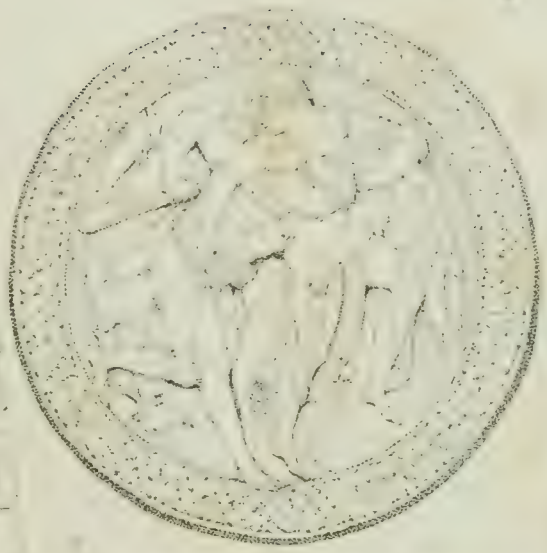


Apollo Belvedere

Laocoon

Published as the Act directs Oct.r 1.1765 by Longman Hurst Rees Orme & Brown Paternoster Row

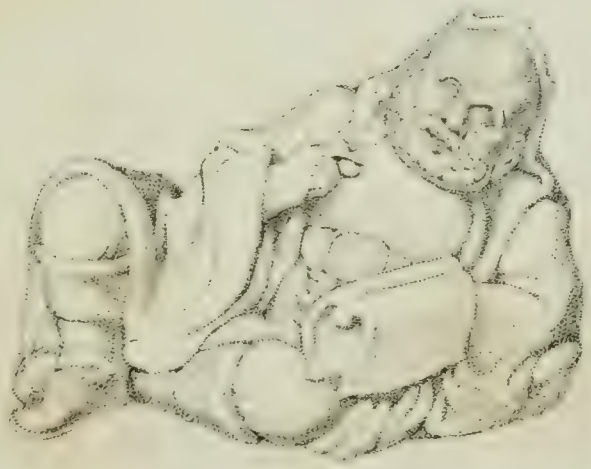
Durga Slaying Mahishasura, a Hendee group.



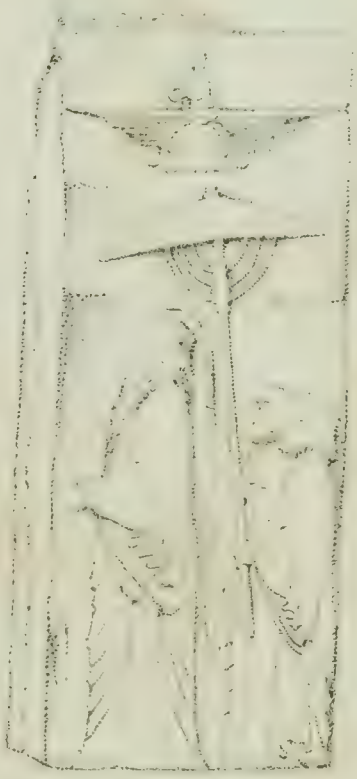
An Etruscan Patera, in the British Museum

A Colossal Statue, at Thebes.

Persian Sculpture, at Persepolis.



A Chinese Statue.



Persian Sculpture, at Persepolis.

Blake sculp.

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Fig. 5

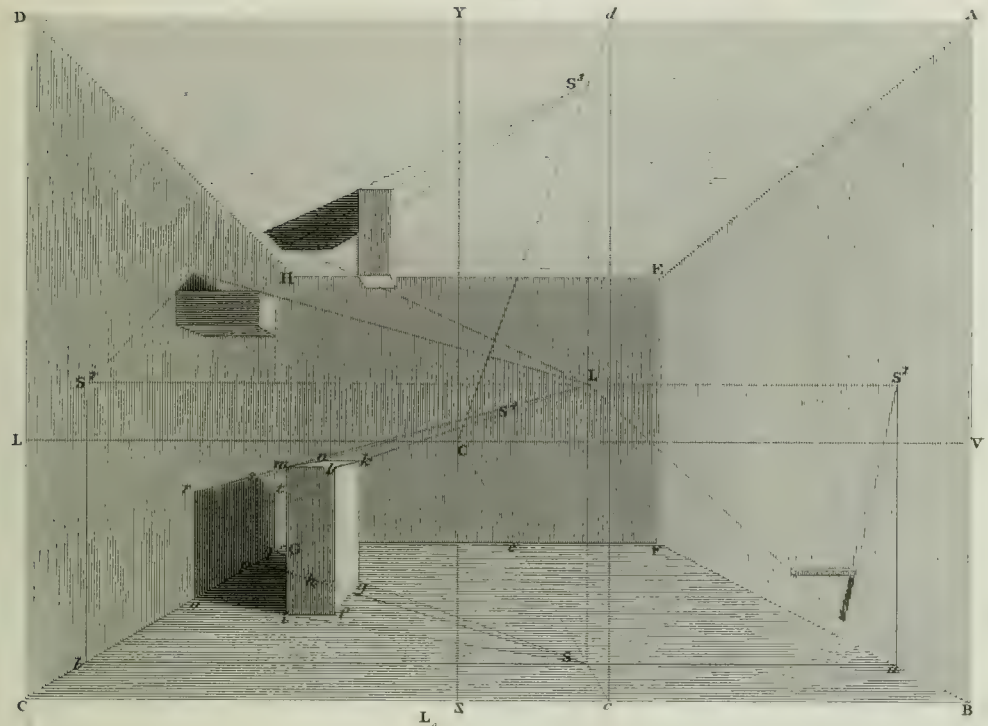


Fig. 1.

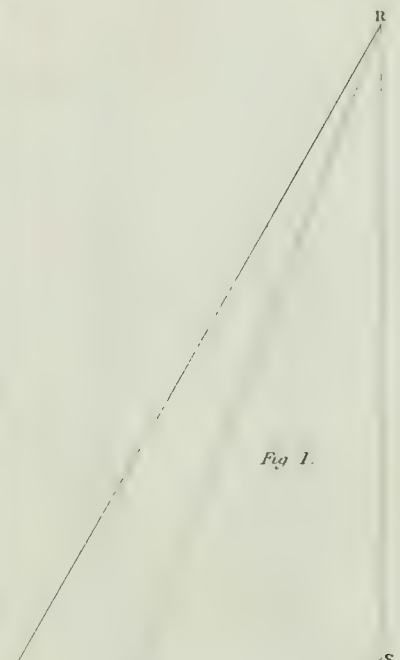
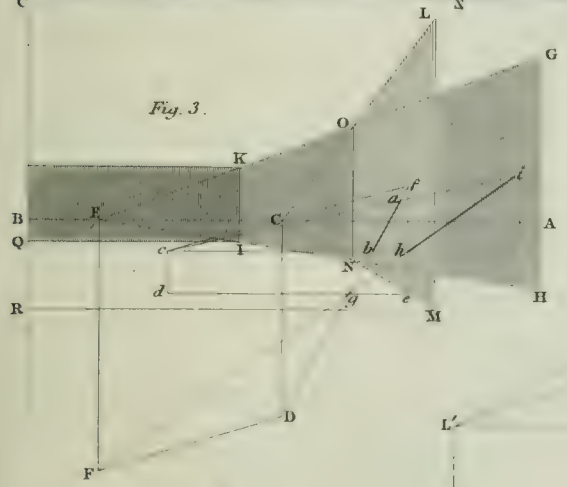
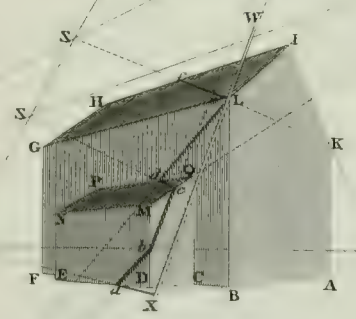


Fig. 3.





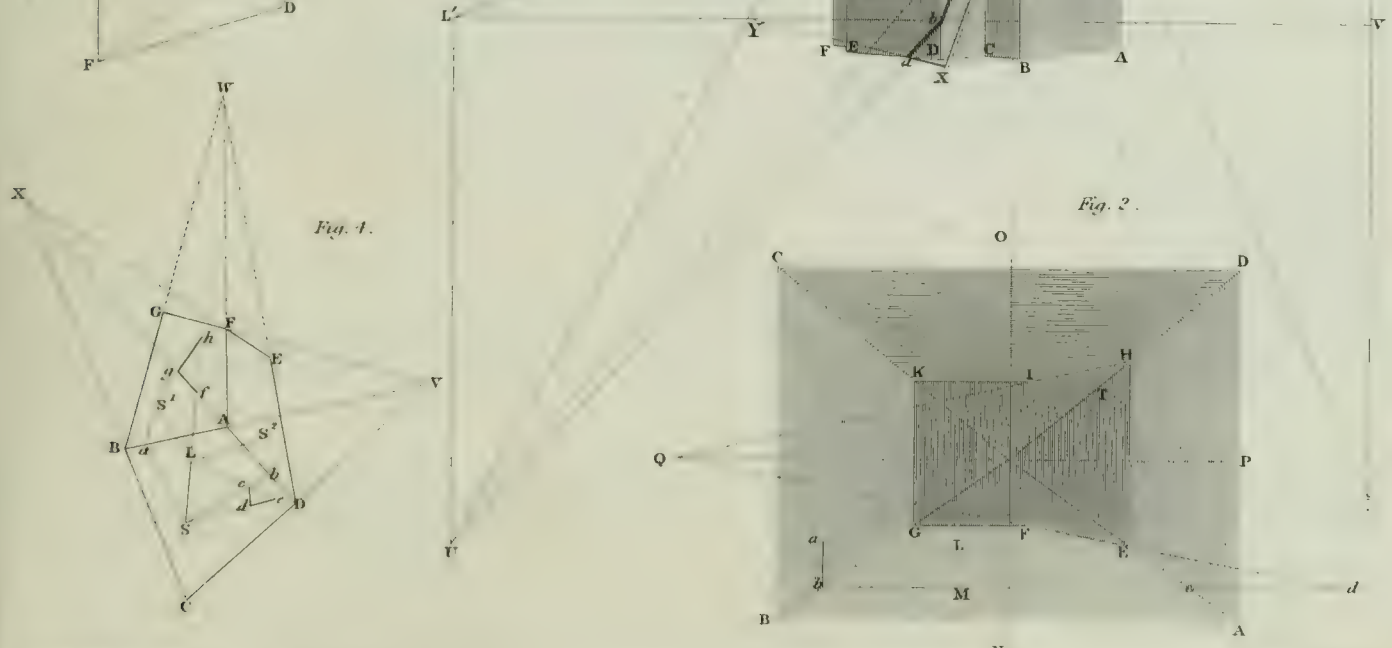


Fig. 4.

Fig. 2.

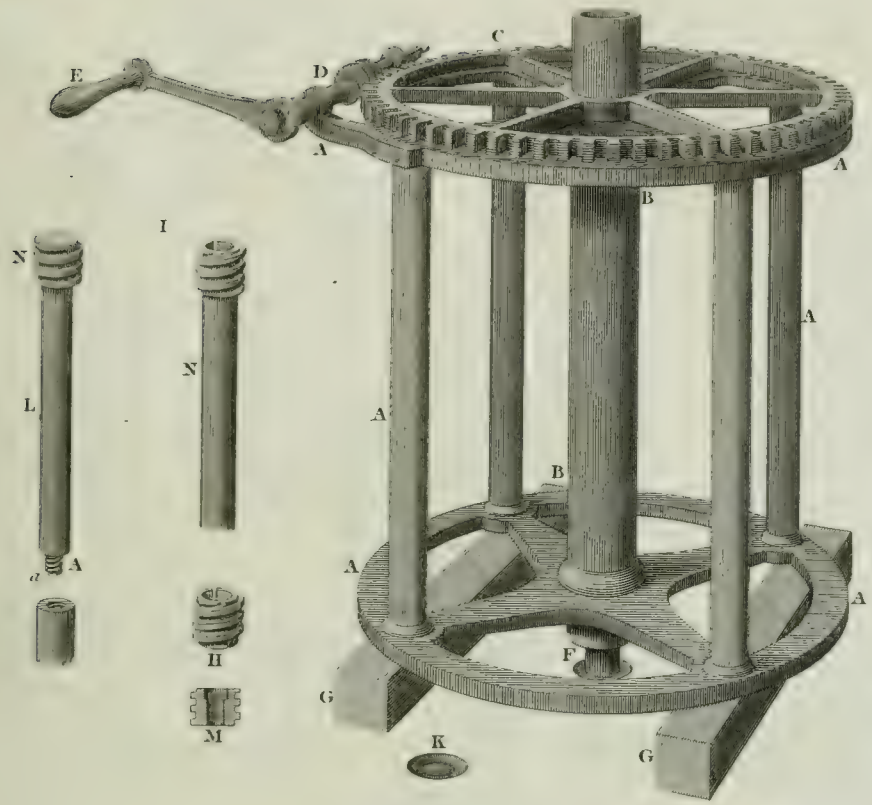
Drawn by P Nicholson

Published as the Act directs, 1816, by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row.

Lowry Sc

Capt. Bolton's machine for drawing Bolts.

Fig. 1.



Phillips's tubes for driving bolts.

Fig. 3.

Fig. 2.

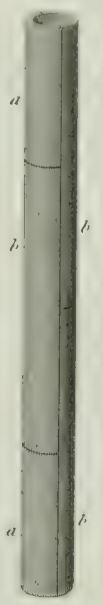


Fig. 4.
Ring Rope

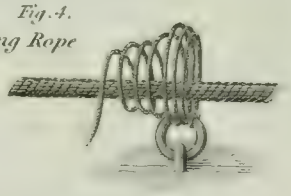


Fig. 5.
Bits.

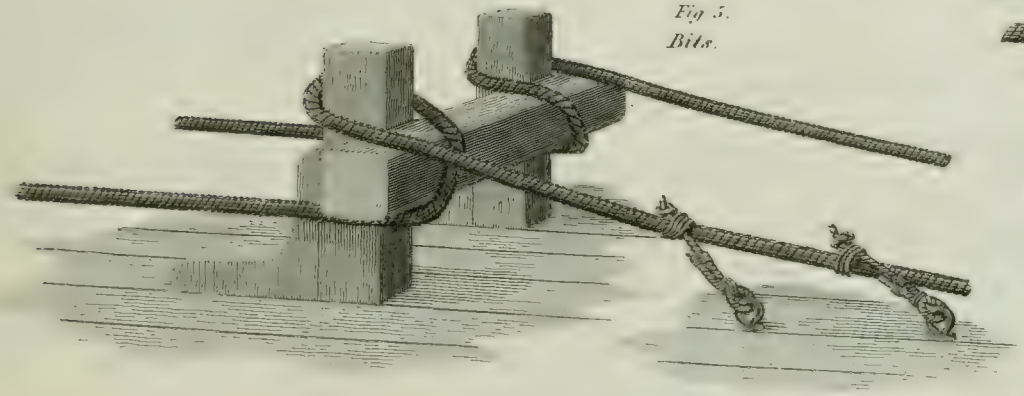


Fig. 5.
Application of the Messenger.

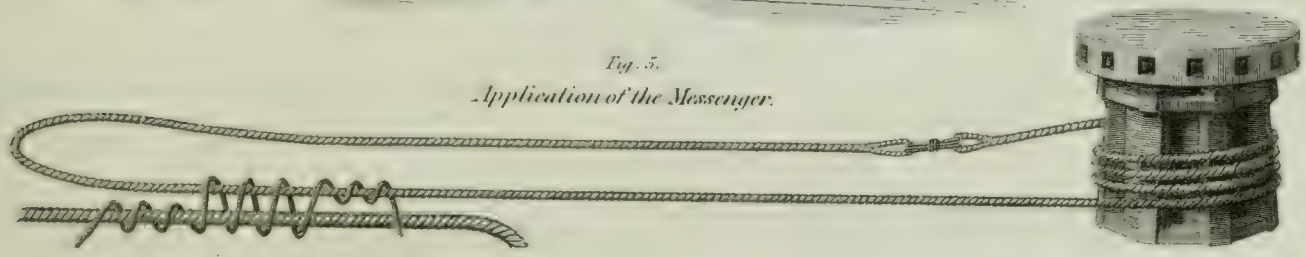
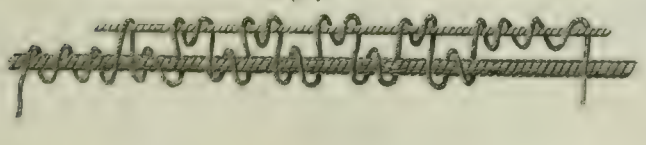


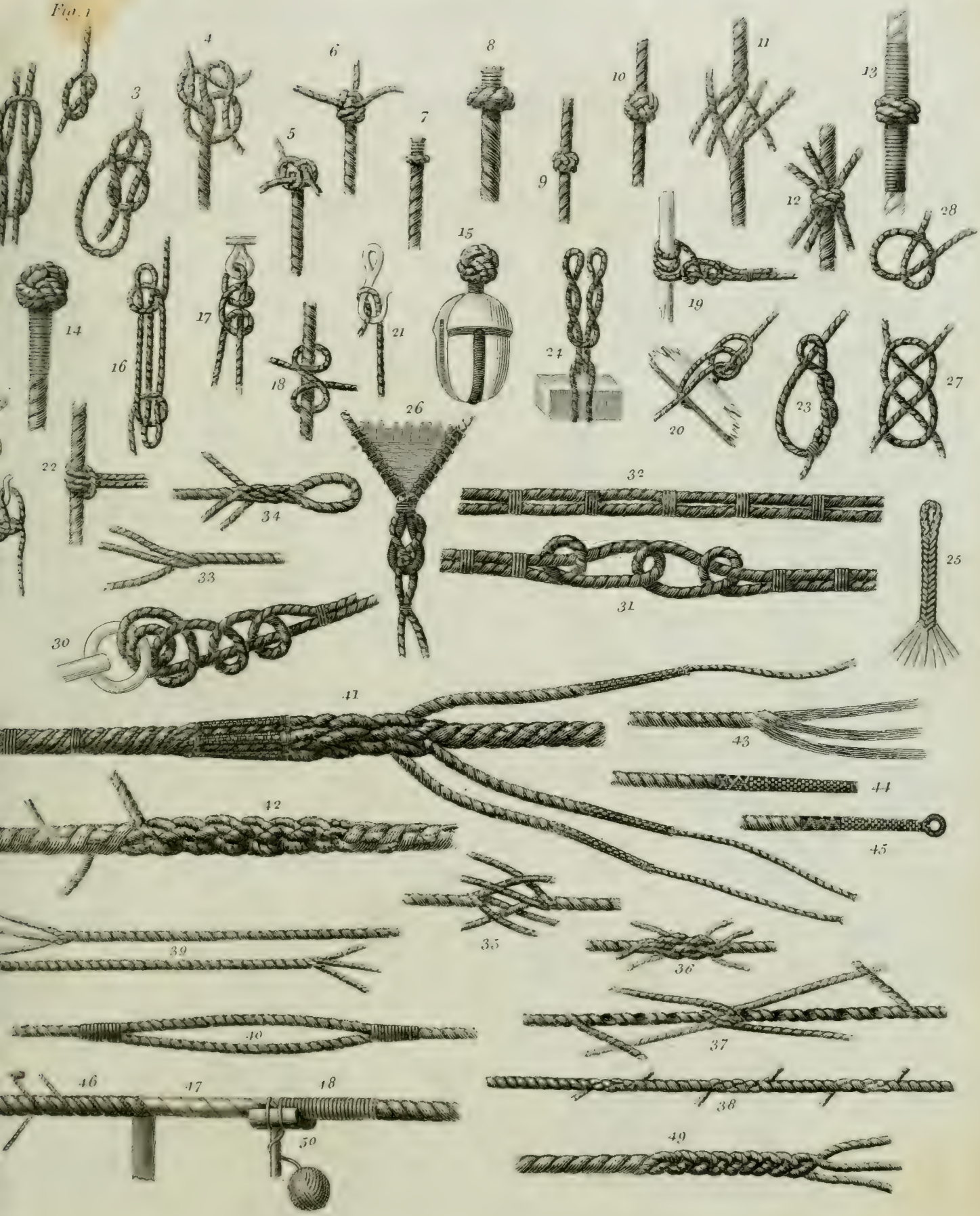
Fig 7



Nippers.

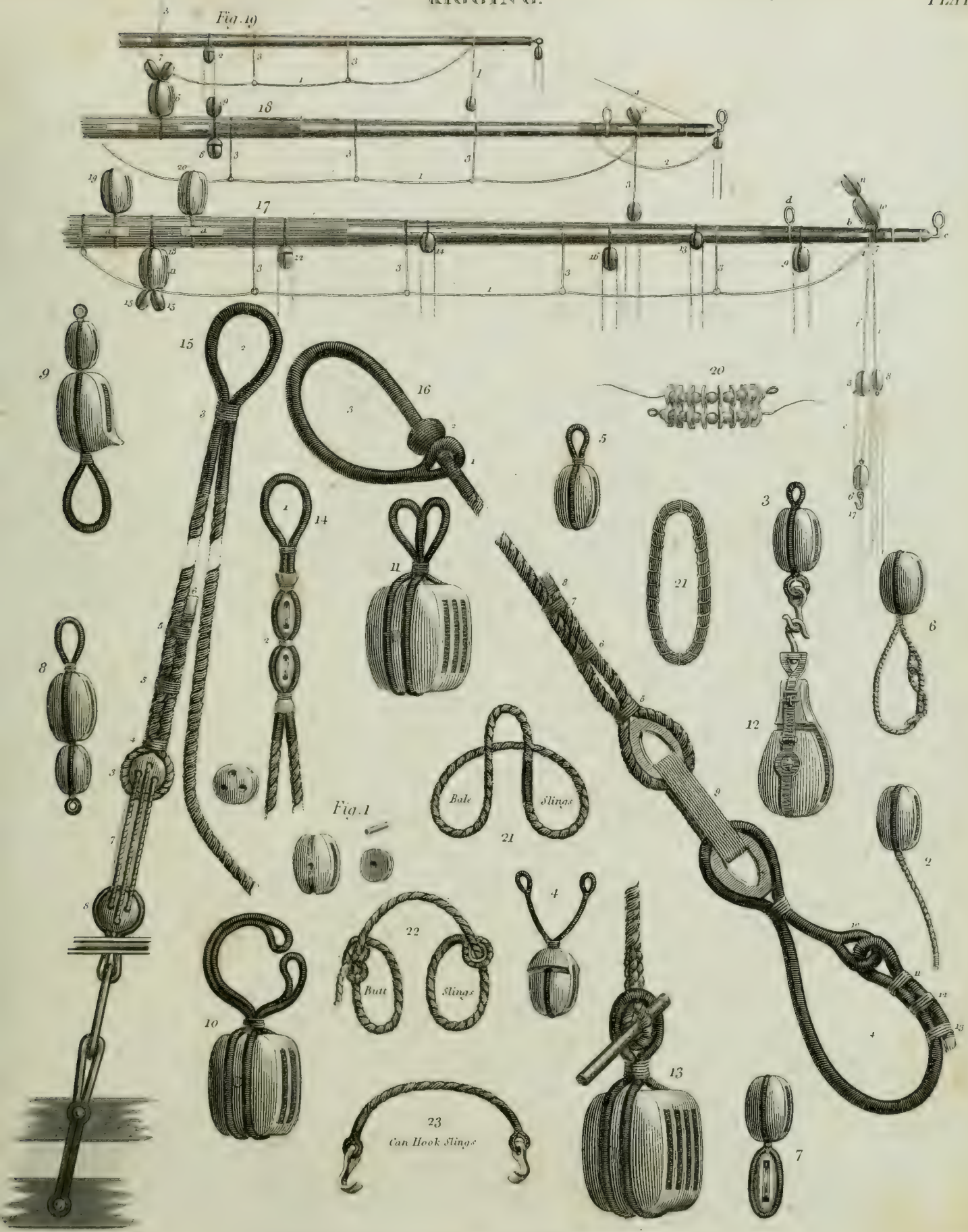
Fig. 6.

J. Farey Junr. delin. Published as the Act directs, 1817, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry Sc.



Published as the Act directs Dec.r 1.1816. by Longman Hurst Rees. Orme & Brown Paternoster Row.

T.Milton scul.



ver del. Published as the Act directs, Oct 1. 1816, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Milton sculp.

SHIPS.

Fig 1.

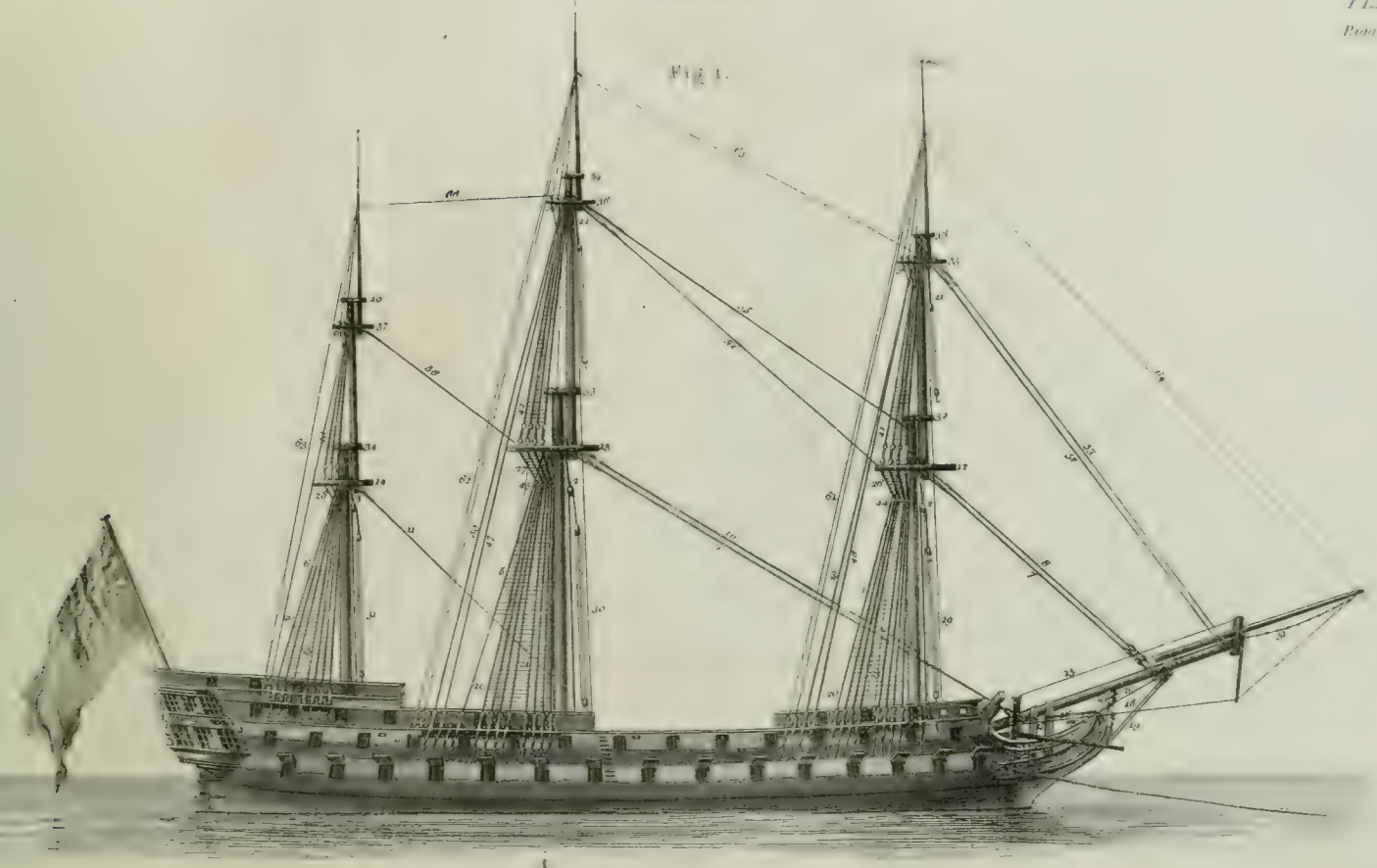
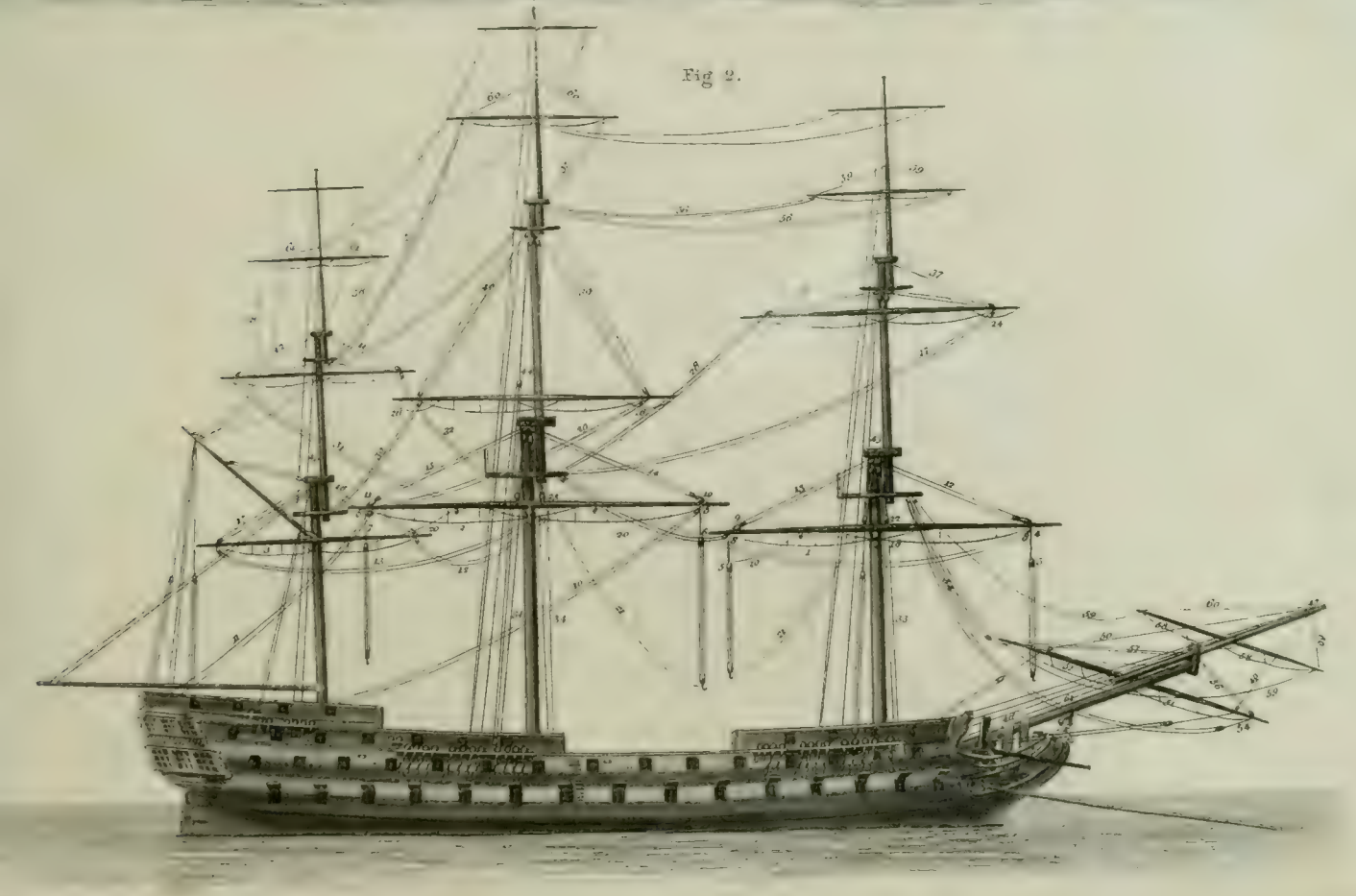


Fig 2.



J Glover del

Published at the Ark Street Oct 3 1831 by Longman Hurst Rees Orme & Brown Paternoster Row

Fig 1.

Fig 2.

Published as the Act directs Jan 1 1820 by Longman Hurst Rees Orme & Brown Paternoster Row.

British Men of War.

First Rate. Man of War's Barge. Seventy four. Lugger.

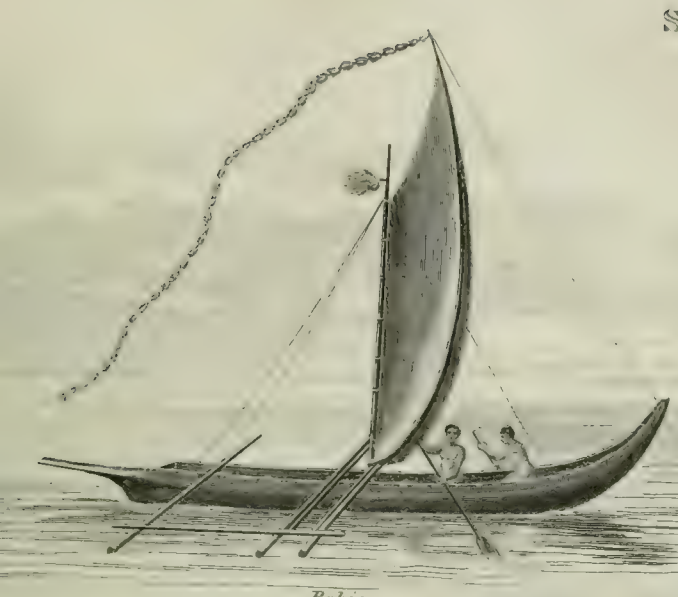
Fire Brig. Flat Bottomed Boat. Gun Vefsel *(the Wolverine.)* Man of War's Long Boat.

Published as the Act directs May 1.1802 by Longman & Rees Paternoster Row.

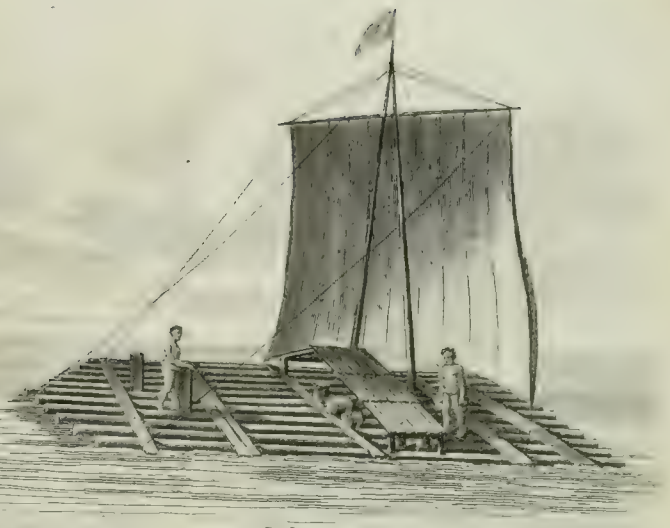
SHIPS.

BOATS.

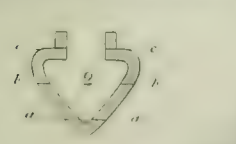
PLATE VII.

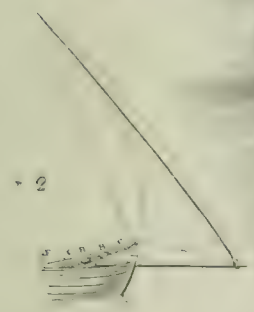


Pahie



Balza





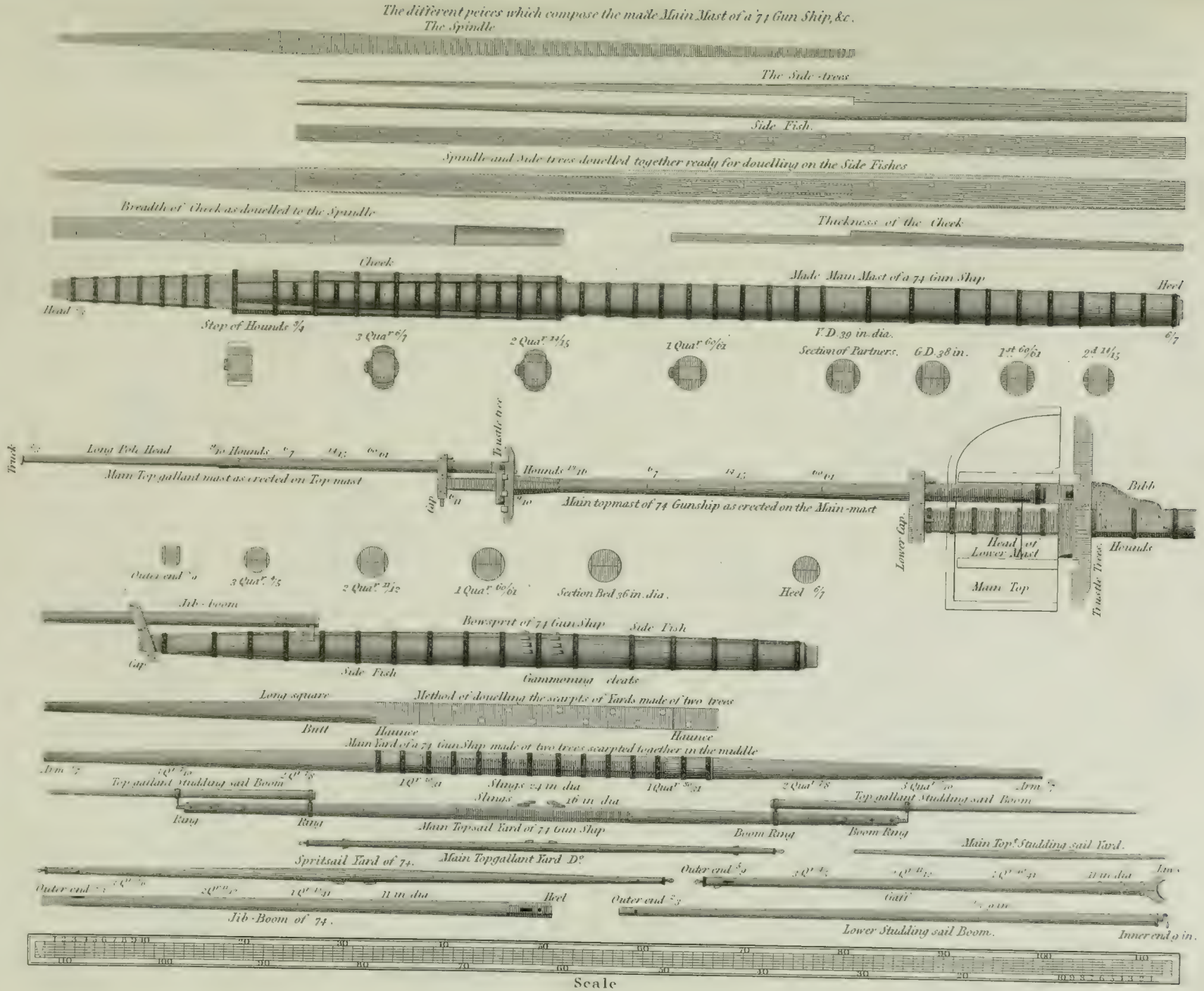
Life Boat

Fig 1 *

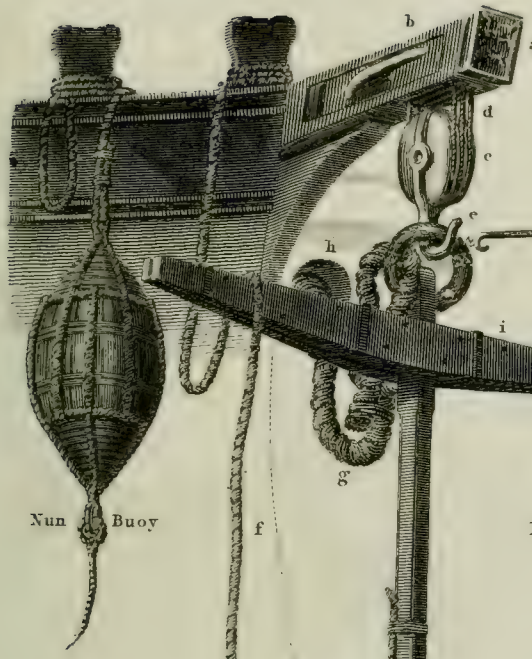
Caracore

* *Spring Block*

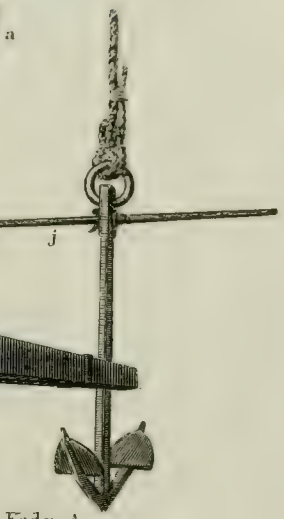
Published as the Act directs July 1 1800 by Longman Hurst Rees Orme & Brown Paternoster Row


The different peices which compose the made Main Mast of a 74 Gun Ship, &c.
The Spindle
The Side trees
Side Fish.
Spindle and Side trees dowelled together ready for dowelling on the Side Fishes
Breadth of Cheek as dowelled to the Spindle
Thickness of the Cheek
Cheek
Made Main Mast of a 74 Gun Ship
Heel
Head
Step of Hounds
3 Quar. 6/7
2 Quar. 14/15
1 Quar. 60/61
V.D. 39 in. dia.
Section of Partners.
G.D. 38 in.
1st 60/61
2d 14/15
6/7
Truck
Long Pole Head
Hounds
Main Top gallant mast as erected on Top mast
Tuckle Tree
Cap
Main topmast of 74 Gunship as erected on the Main-mast
Bibb
Lower Cap.
Head of Lower Mast
Main Top
Hounds
Outer end
3 Quar.
2 Quar.
1 Quar.
Section Bed 36 in. dia.
Heel
Jib-boom
Bowsprit of 74 Gun Ship
Side Fish
Cap
Gammoning cleats
Long square
Method of dowelling the scarfs of Yards made of two trees
Butt
Hounce
Main Yard of a 74 Gun Ship made of two trees scarfed together in the middle
Arm
Top gallant Studding sail Boom
Slings 24 in dia
Slings 16 in dia
1 Quar.
2 Quar.
3 Quar.
Ring
Main Topsail Yard of 74 Gun Ship
Boom Ring
Main Topt. Studding sail Yard.
Spritsail Yard of 74.
Main Topgallant Yard Do.
Outer end
Heel
Jib-Boom of 74.
Lower Studding sail Boom.
Inner end
Scale

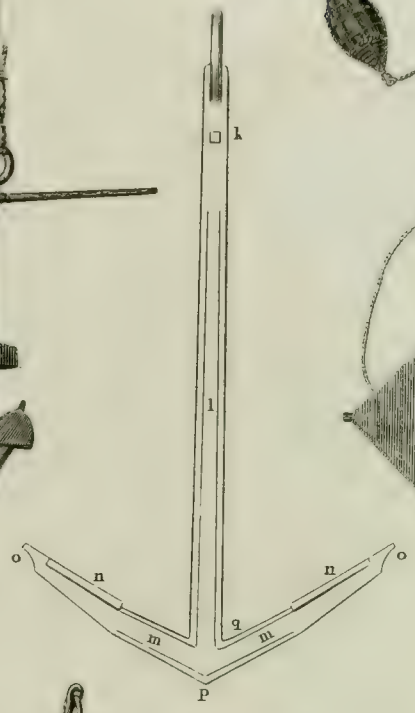
ANCHORS AND BUOYS.

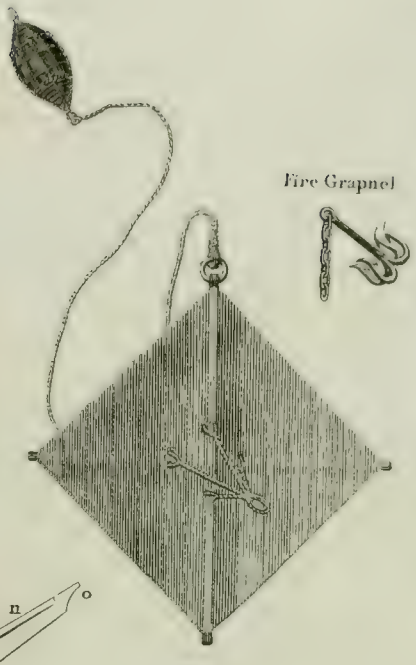


Nun Buoy



Kedge A.

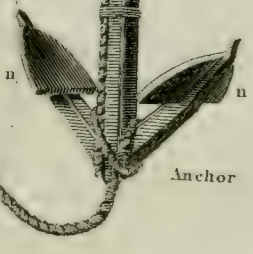




Fire Grapnel

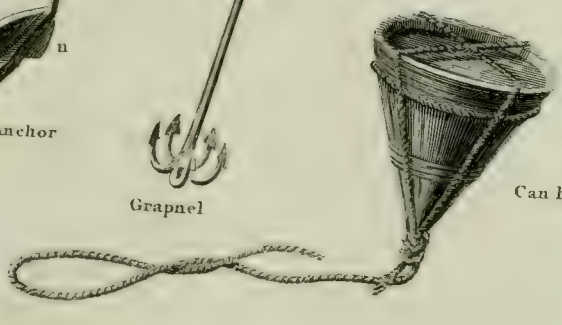
Floating A.

Anchor Shoe



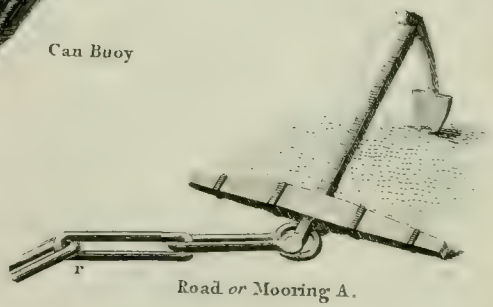
Anchor

Grapnel



Can Buoy

Creeper



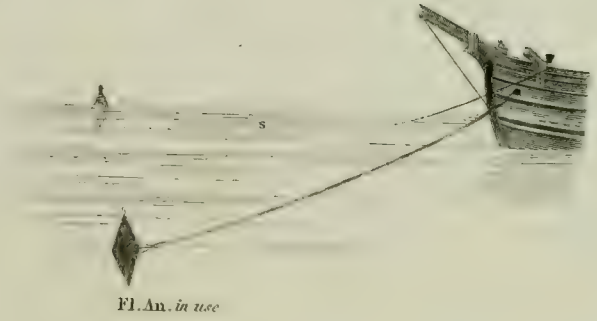
Road *or* Mooring A.

Jews Harp

Swivel Ring

1. *Coax*
2. *Round Turn*

Foul Hawse



Fl. An. *in use*

a. *Cat Head* b. *Cloat* c. *Cat Block* d. *Cat-Fall* e. *Cat-Hook* f. *Buoy Rope* g *Hawser* h. *Hawse Hole* i. *Stock* j. *Shifting Stock (Iron)* k. *Nut for securing the Stock* l. *Shank* m *Arms* n. *Flukes* o *Bill.* p. *Crown* q. *Throat* r. *Mooring Chain* s. *Buoy Guy.*

Published as the Act directs, July 2. 1810, by Longman, Hurst, Rees & Orme, Paternoster Row.

SHORT HAND.

The Alphabet.

Invented by John Byrom, M.A. and F.R.S.

LETTERS.		WORDS.	PREPOSITIONS.	TERMINATIONS.
A		*A*	------	------
b		*be*; *but*	*Be-*	*-able*
ç, c		(*s*, or *k*.)	------	------
d		*and*	*de-*	*-ed*
e		------	------	------
f		*of*	*for-*	*-ify* *-ful*
g		*again* *against*	------	------
h		*have*; *had*	------	------
i		*I*	------	------
k		*can* *could*	*com-* *con-*	*-ical*
l		*all*; *always*; *altogether*	------	------
m		*am* *amongst*	*magni-* *mis-* *omni-*	*-ment*
n		*an* *in* *under*	*ante-* or *anti-* *in-* or *inter-* *un-* or *under-*	*-ence* *-ent* *-ness*
o		*O!*	------	------
p		*upon*	*per-*, *pre-* or *pro-*	------
q		*question*	------	------
r		*or*	*re-*	*-ary*, *-ing*
s		*as* *is* *us*	*satis-* *circum-* *sub-* or *super-*	*-ation* *-etion* *-ition* *-tion* *-ution* (*-self*, *-soever*)
t		*the*	*trans-*	*-ity*
u		*you*	------	------
v		------	------	------
w		*will*; *would*	*with-*	*-ward*
x		*except*; *exercise*	*ex-*; *extra-*	------
y		*yet*	------	------
z		------	------	------
ch		*which*	------	------
sh		*shall*; *should*	------	*-ship*
th		*that*	------	------

Miscellaneous EXAMPLES.

	Answer
	Cypher
	Departure
	Entertained
	Fail
	Feel
	Forward
	Library
	Matrimony
	Nations
	Numeration
	Overcome
	Perplex
	Revengeful
	Short-hand
	Square
	Substance
	Training
	Without
	Your
	Zephyr

Common CONTRACTIONS.

Dr.		*Doctor*
Etc.		*Et cætera*
Mr.		*Master*
Mrs.		*Mistress*
MS.		*Manuscript*
NB.		*Nota Bene*
PS.		*Postscript*
Rev.		*Reverend*
Viz.		*Videlicet*

Vowels' Places.

ab, *et*, &c. *ta*, *te*, &c. *as*, *es*, &c. *sa*, *se*, &c.

am, *em*, &c. *ma*, *me*, &c. *an*, *en*, &c. *na*, *ne*, &c.

Figures.

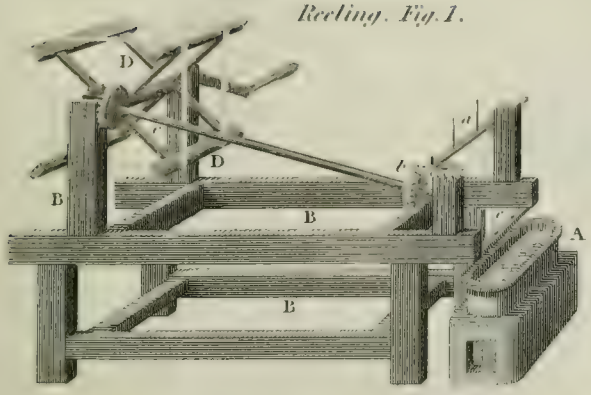
1	2	3	4	5	6	7	8	9	0

London, Published Jan.ʸ 2.ᵈ 1816, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

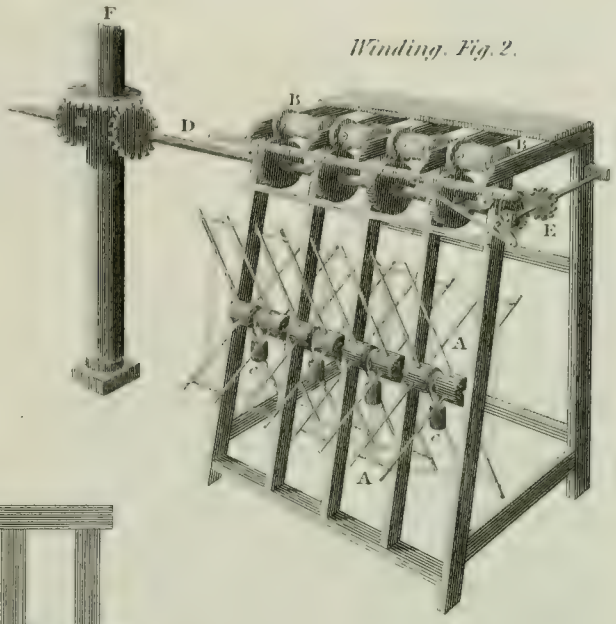
Suffield sculp.

SILK MANUFACTURE

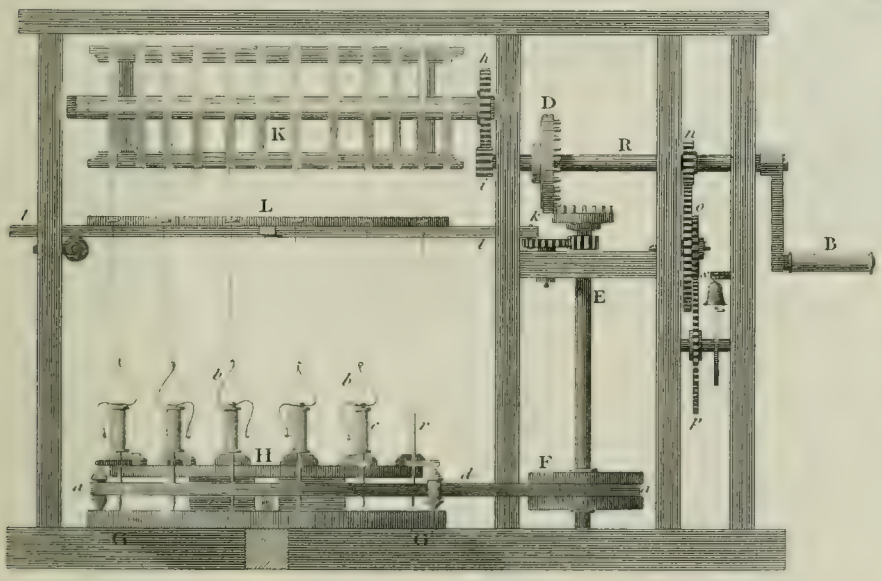
Reeling. Fig. 1.



Winding. Fig. 2.



Throwsting. Fig. 3.



Doubling. Fig. 4.

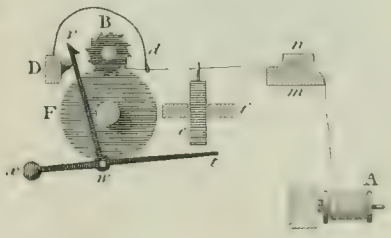
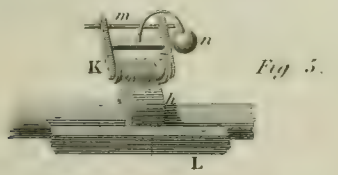
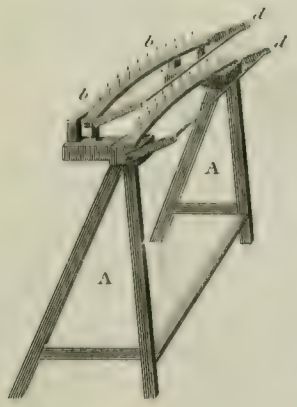
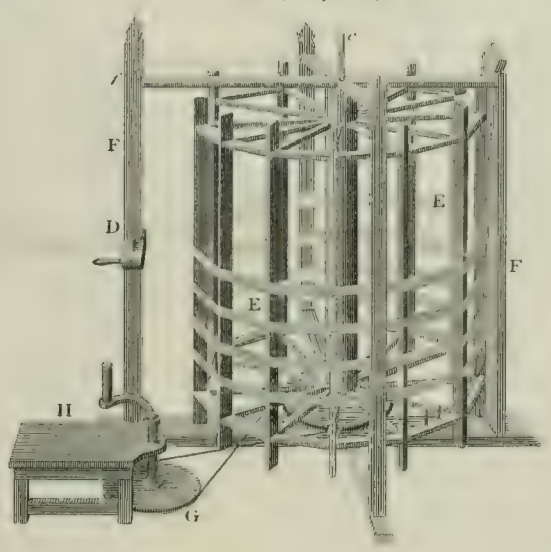


Fig. 5.





Warping. Fig. 6.



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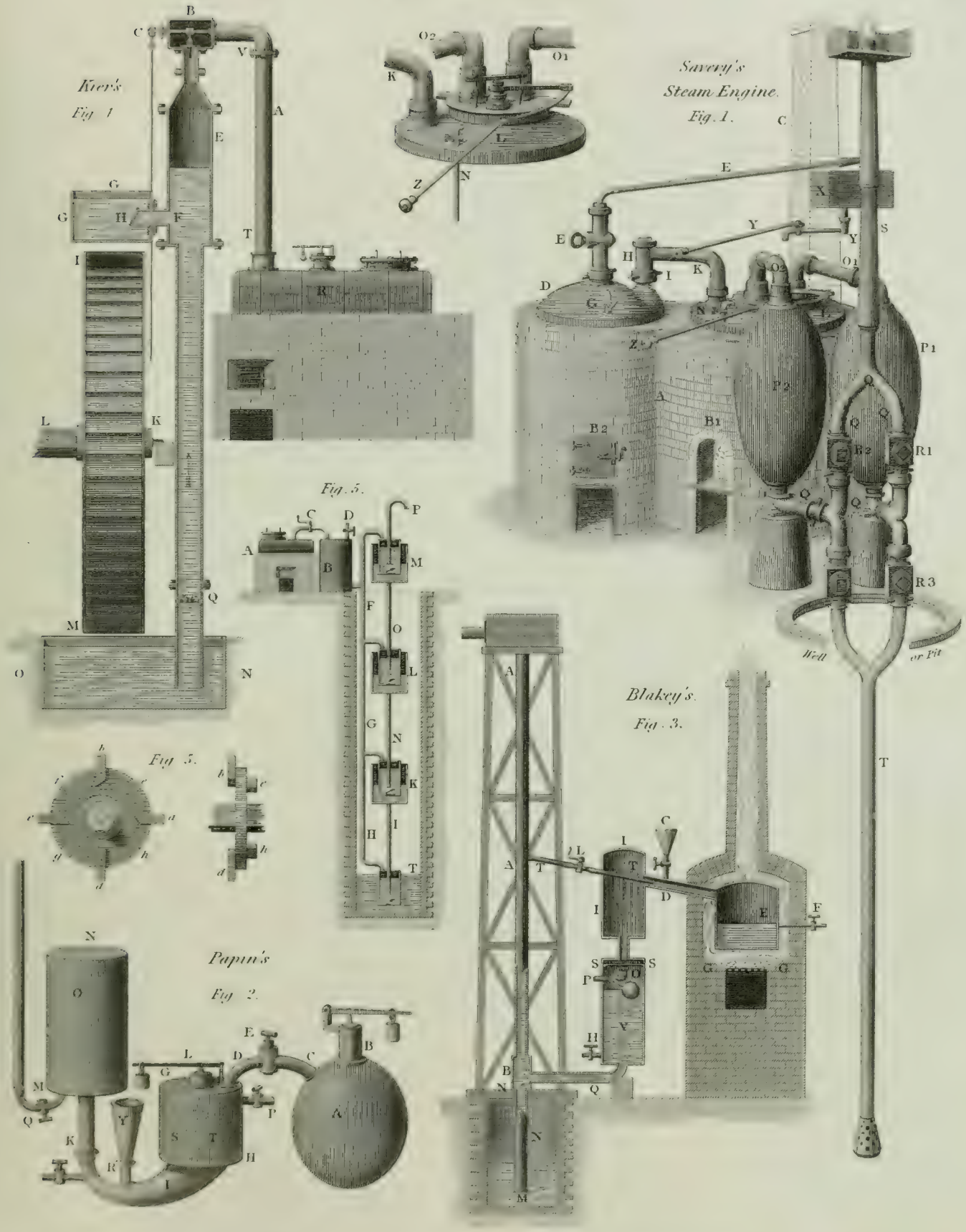

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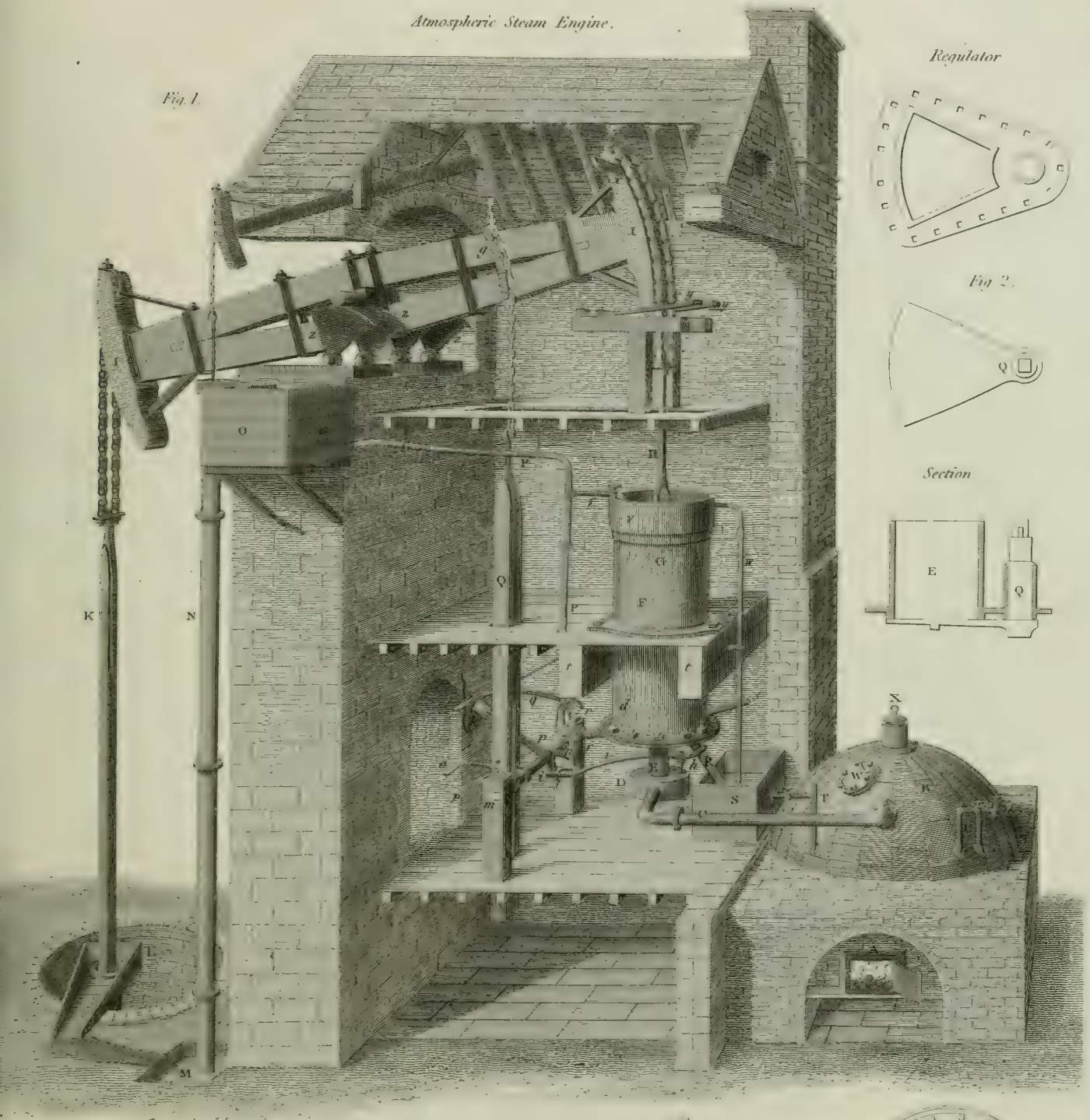
Lowry Sc.

STEAM ENGINE.

Atmospheric Steam Engine.

Fig. 1.



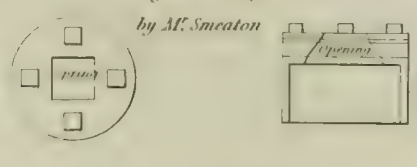
Regulator

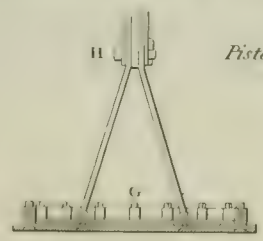
Fig 2.

Section

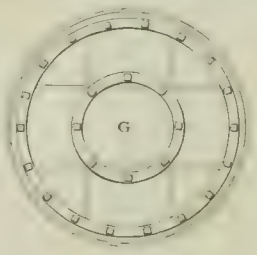
Injection Cap.

by Mr. Smeaton





Piston



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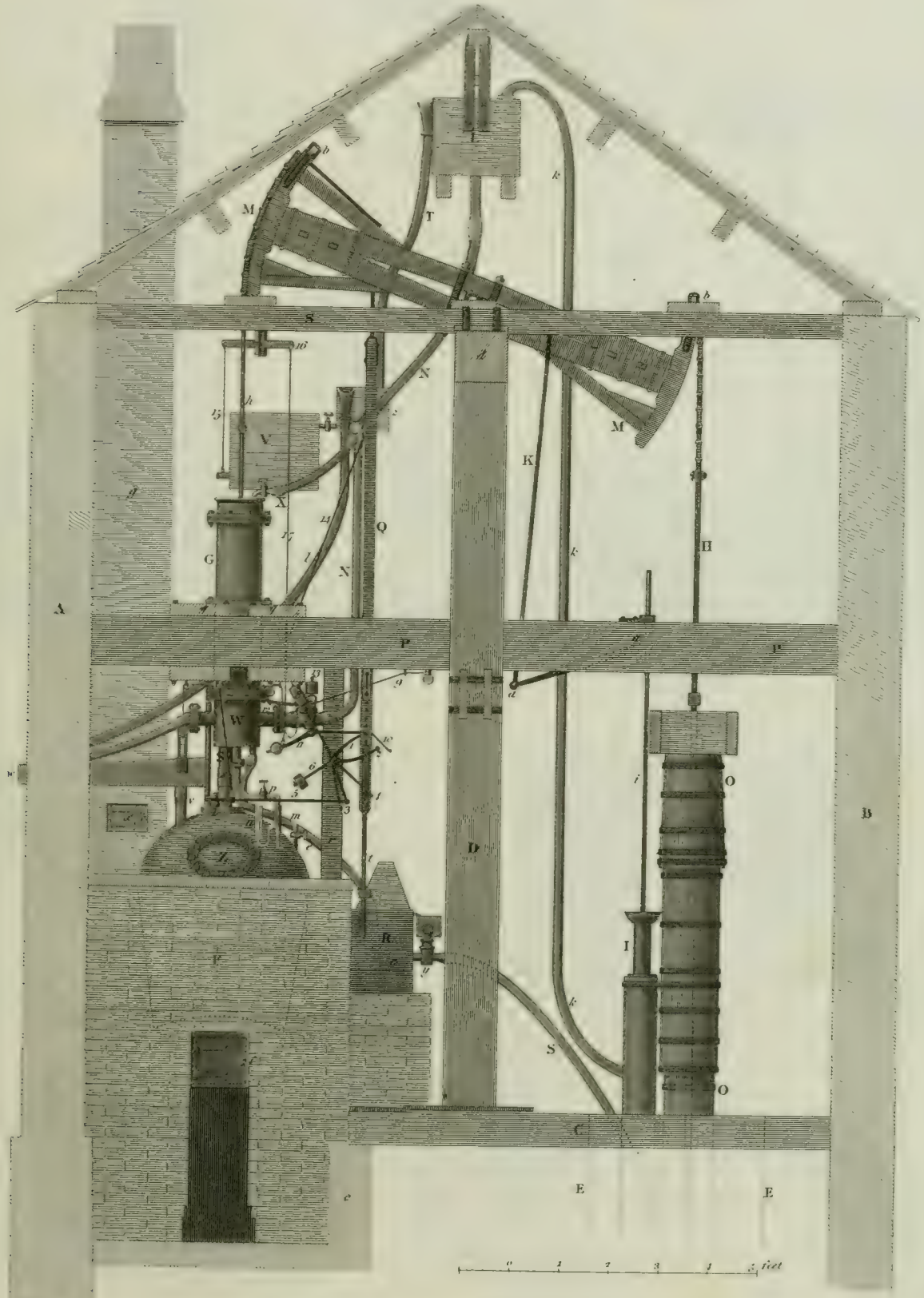
Lowry sculp

STEAM ENGINE.

On the principle of NEWCOMEN, as constructed by SMEATON.



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Engraved by W. Lowry.

STEAM ENGINE.

Mr. WATT'S ENGINE.

Fig. 1.

Single acting ENGINE for pumping at CHELSEA WATER-WORKS.

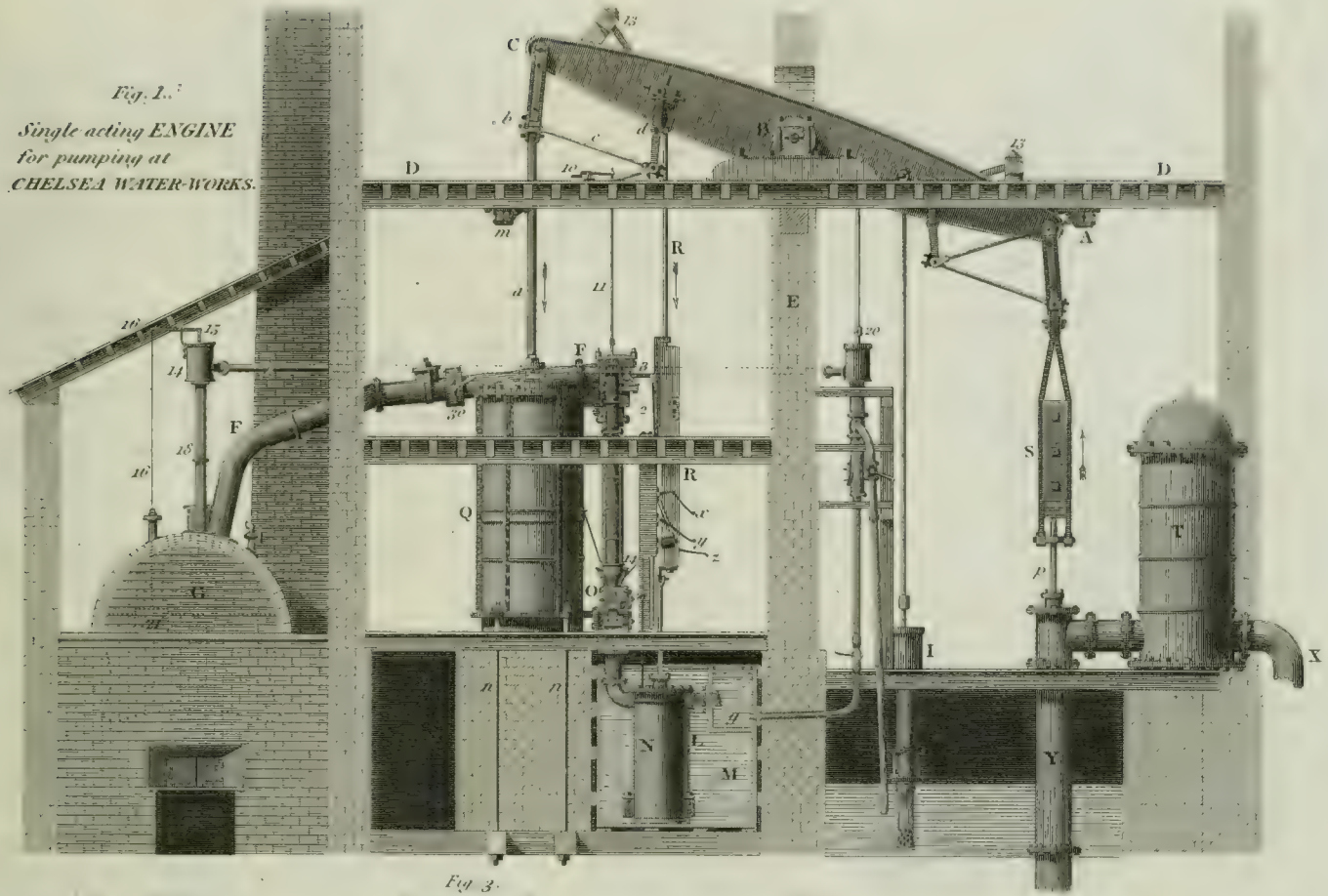


Fig. 2.

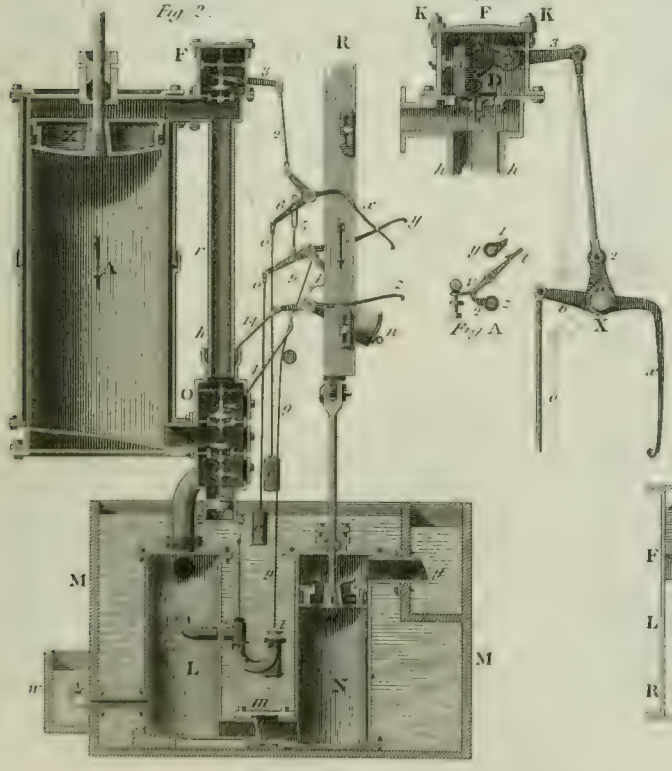


Fig. 3.

Fig. A

Fig. 4.

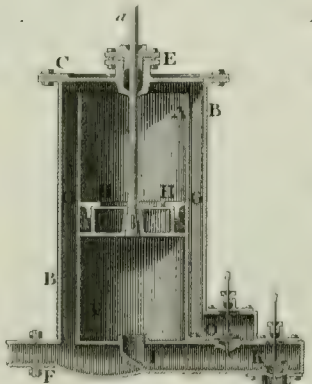


Fig. 5

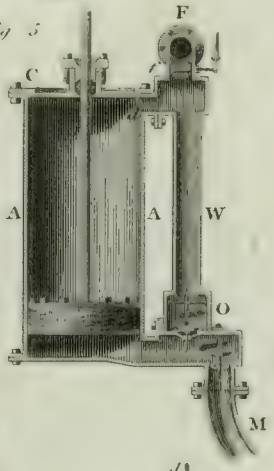
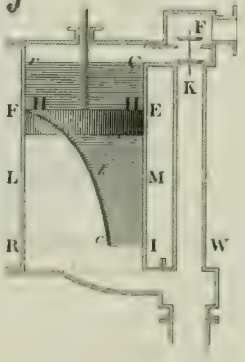
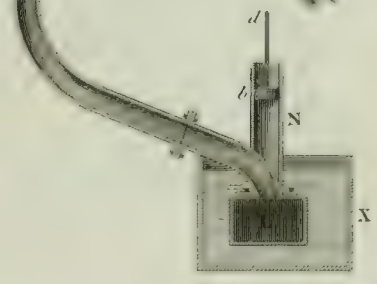


Fig. 6.





J. Lowry delin.

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Lowry sc.

STEAM ENGINE.

Fig. 5.

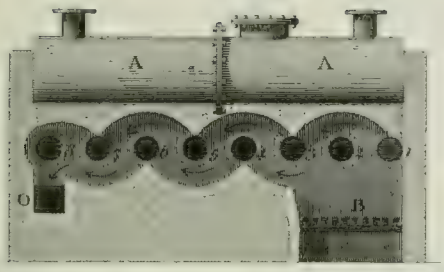


Fig. 4.

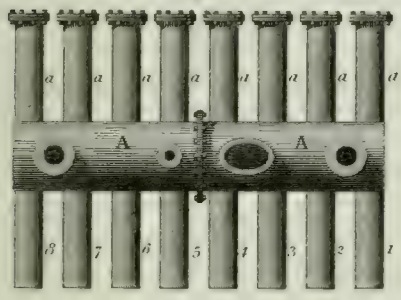
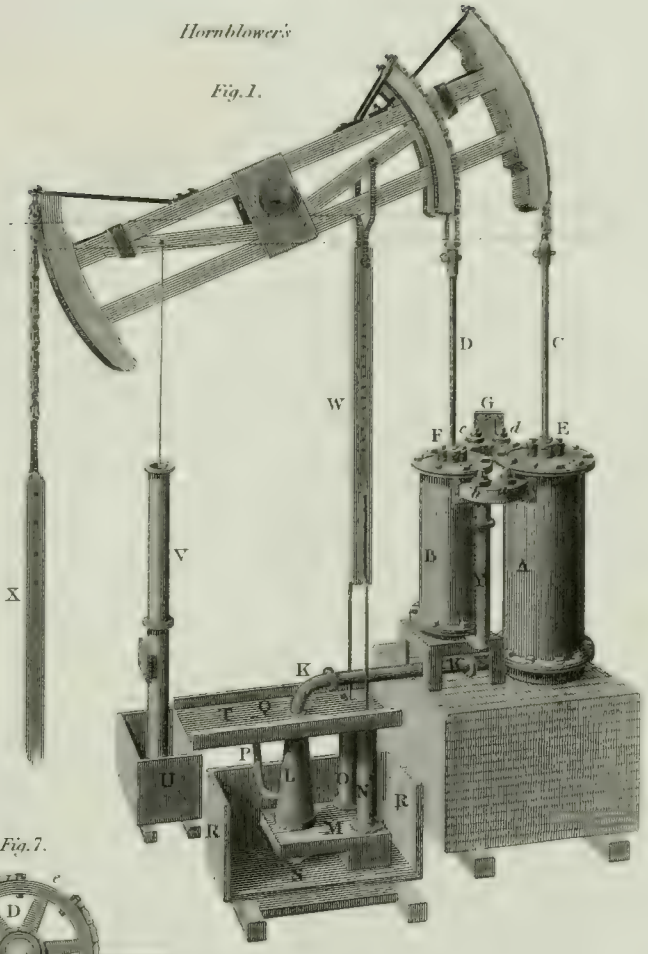


Fig. 2.

Hornblower's

Fig. 1.



Cartwright's

Fig. 8.

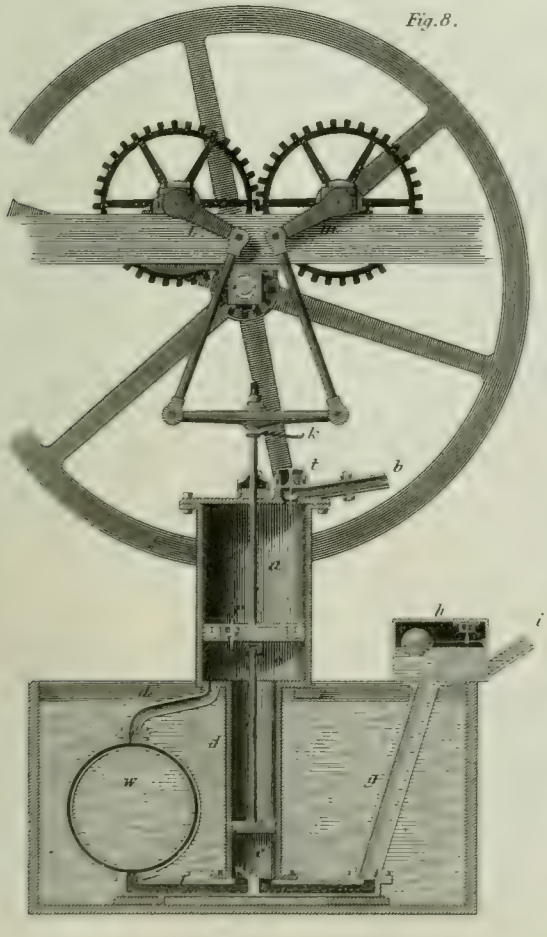


Fig. 7.

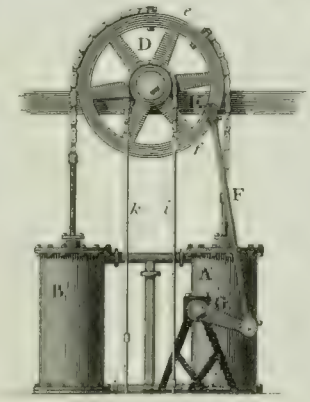
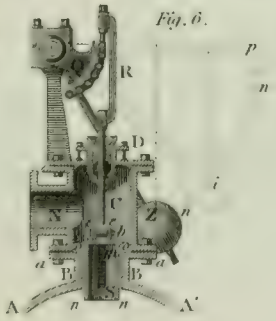
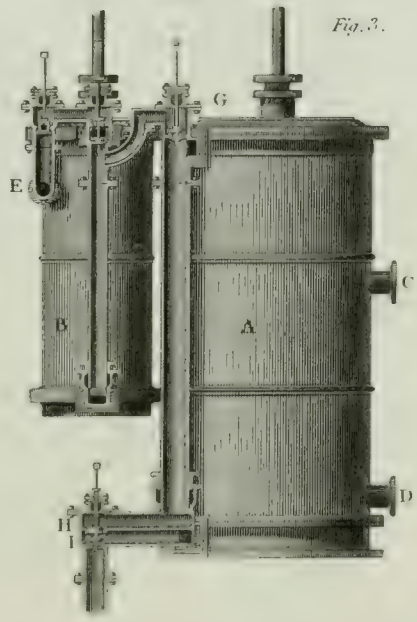


Fig. 6.



Woolf's

Fig. 3.



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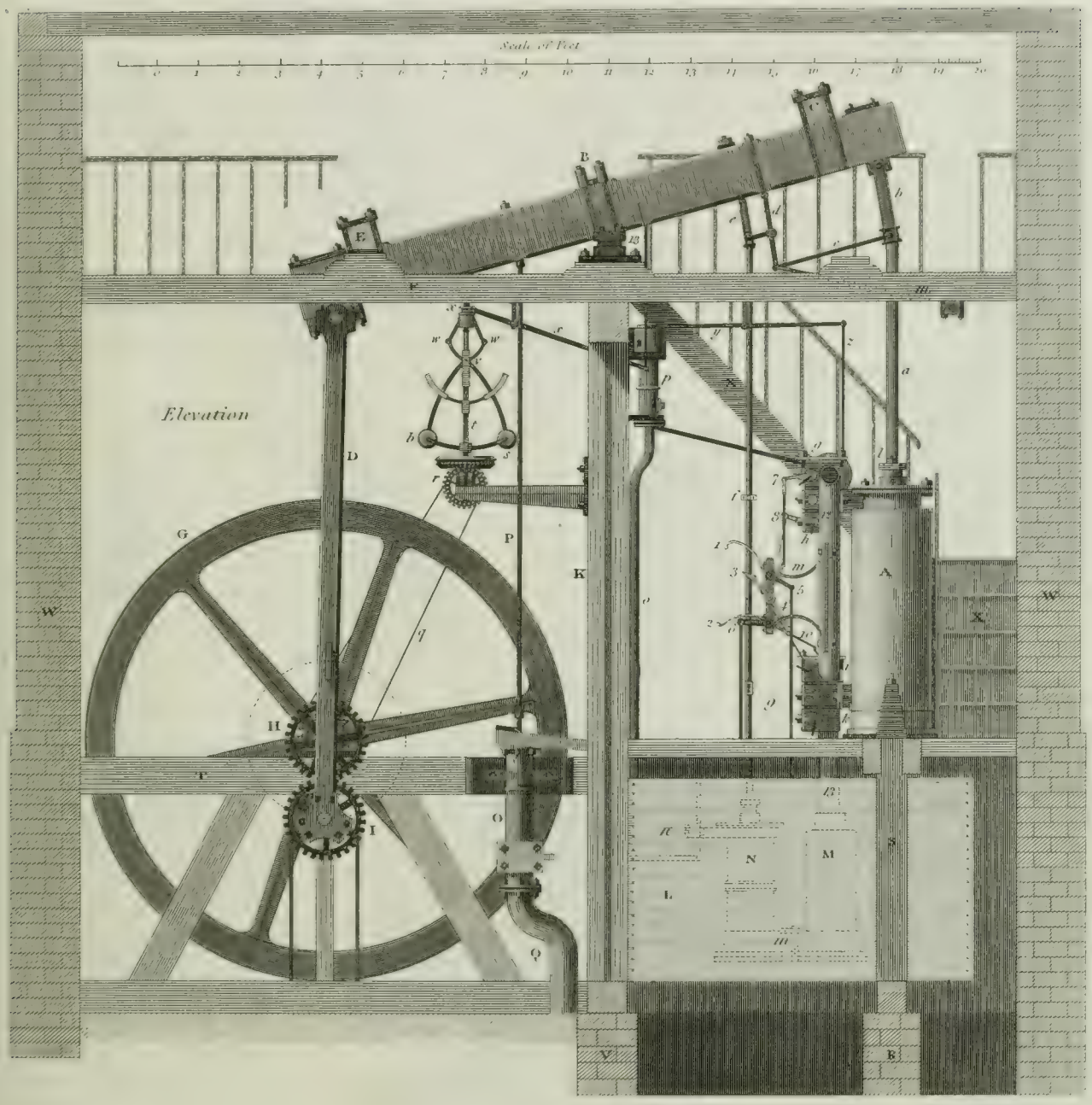
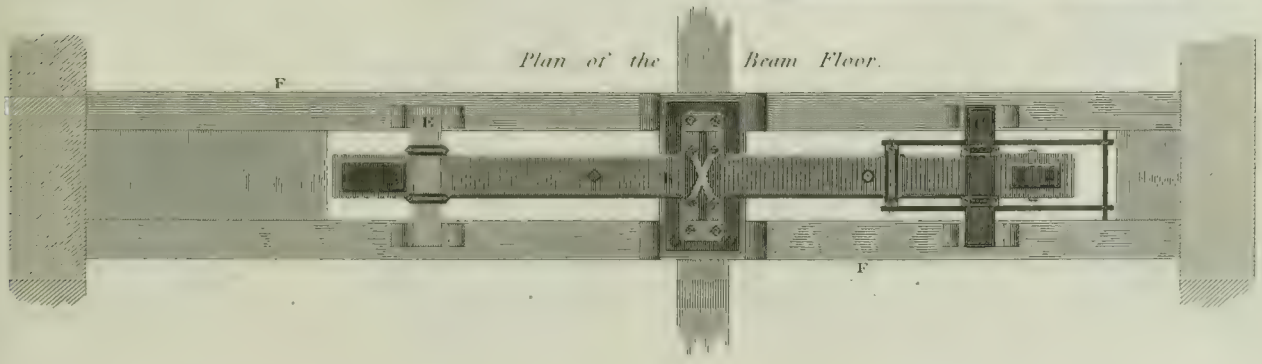
Lowry sculp

STEAM ENGINE.

Boulton and Watt's Engine on the original Construction.



Plan of the Beam Floor.



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STEAM ENGINE,

CYLINDERS, PISTONS &c.

Fig. 4.

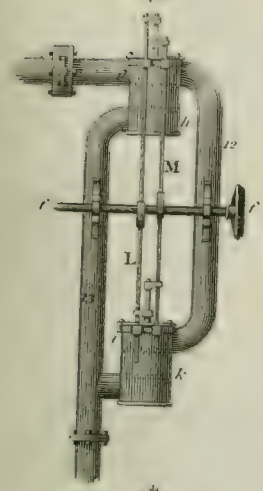


Fig. 5.

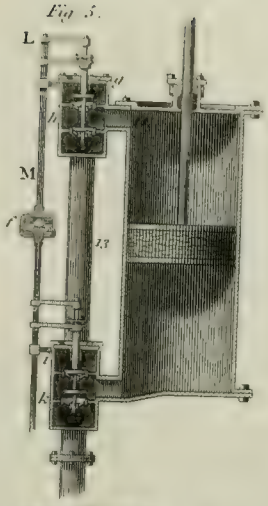


Fig. 2

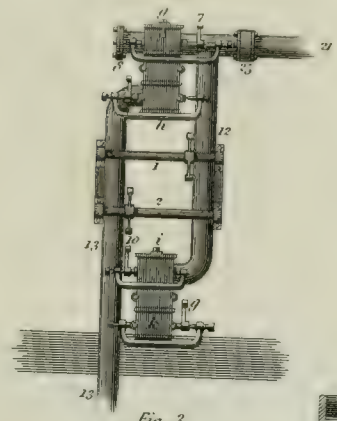


Fig. 1.

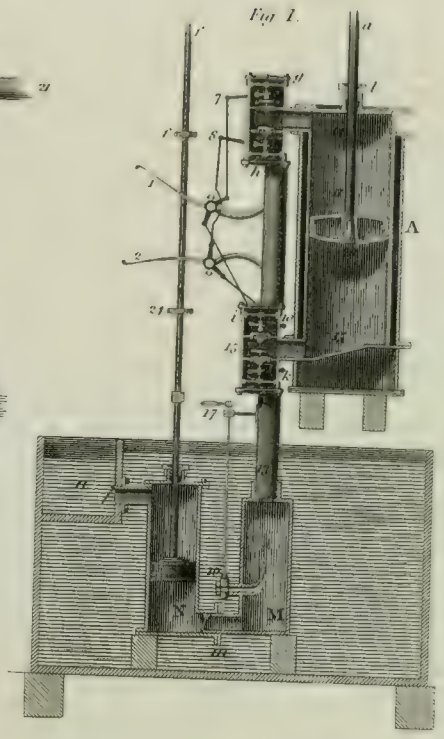


Fig. 16.

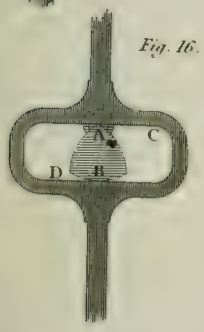


Fig. 15.

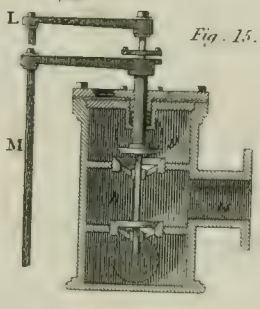


Fig. 3.

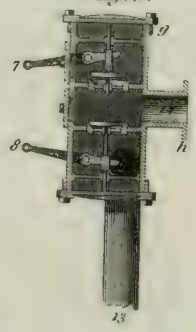


Fig. 9.

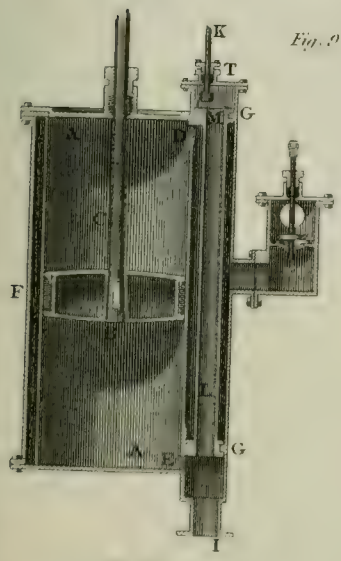


Fig. 8.

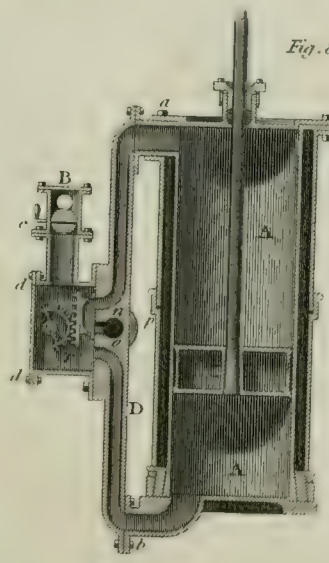


Fig. 7.

Fig. 6.

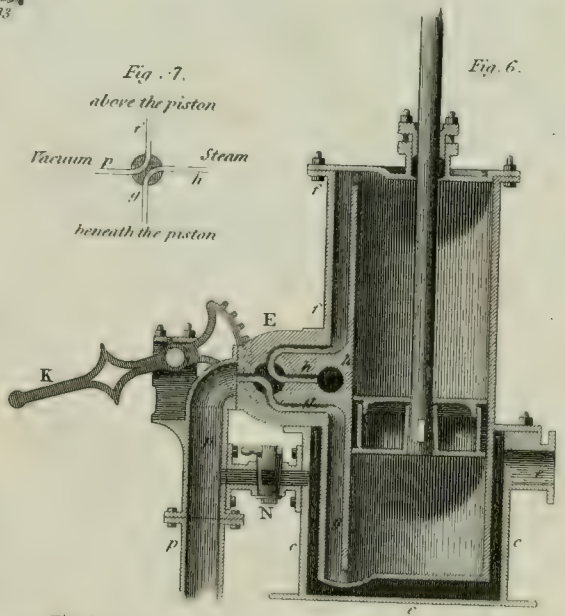


Fig. 10

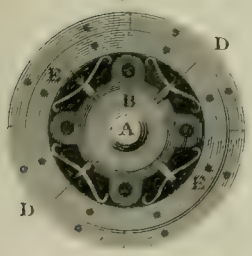


Fig. 11.

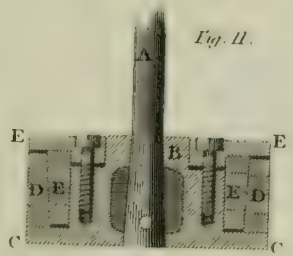


Fig. 12.

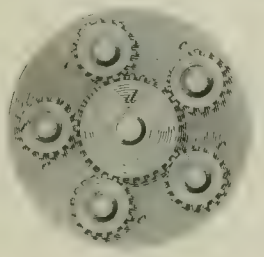
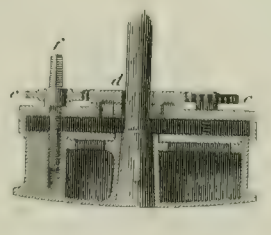


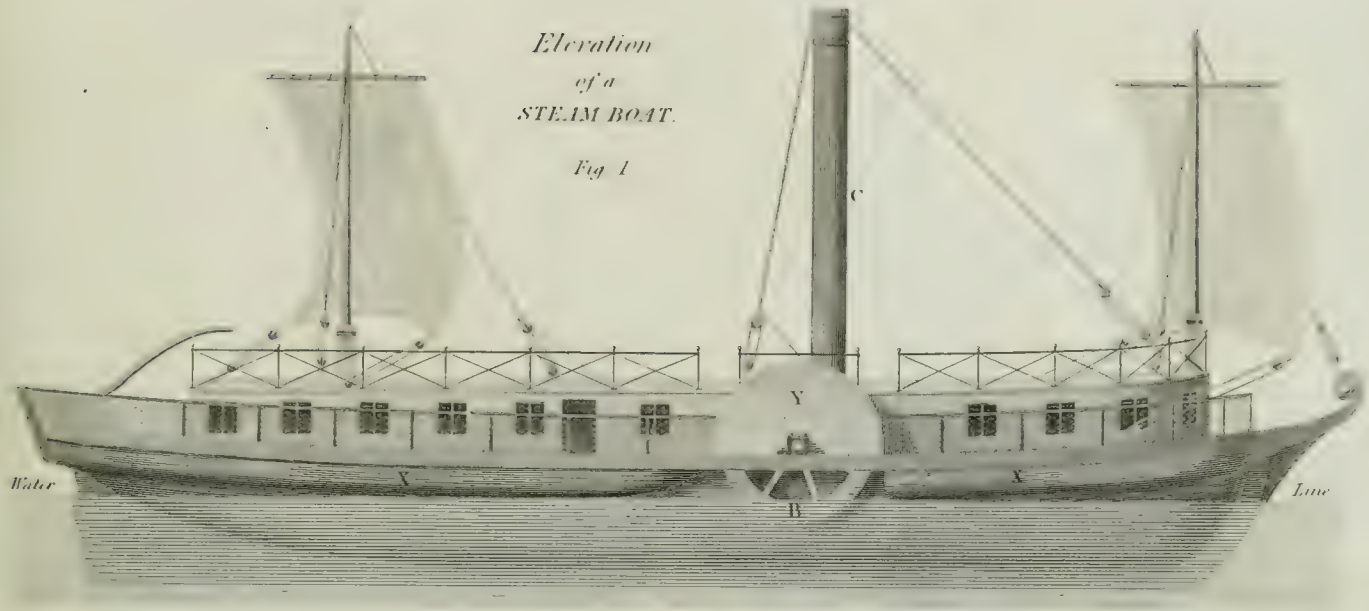
Fig. 13.



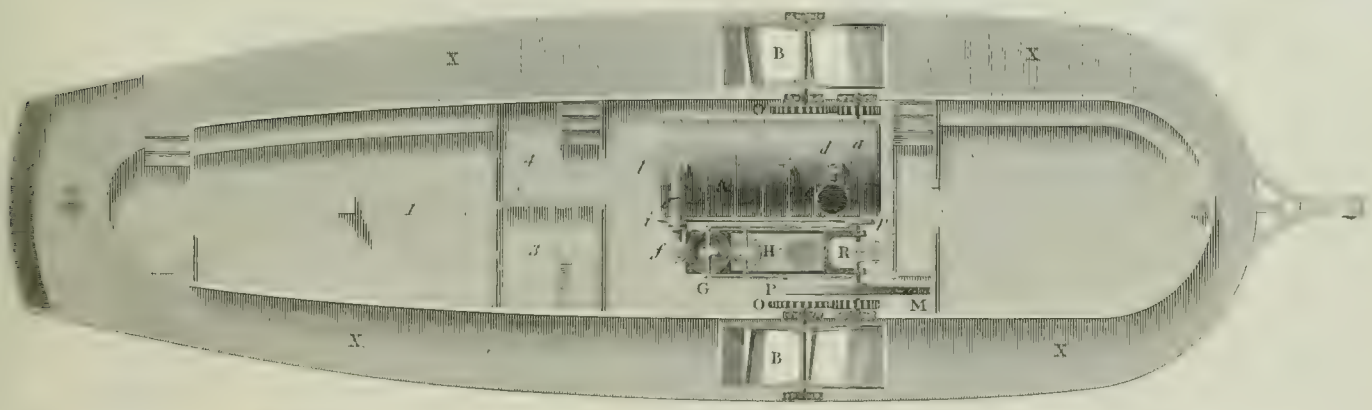
J. Farey delin. *Published as the Act directs, 1818, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.* *Lowry Sc.*

Elevation of a STEAM BOAT.

Fig 1



Plan Fig 2



Maudslay's STEAM ENGINE.

Fig 3.

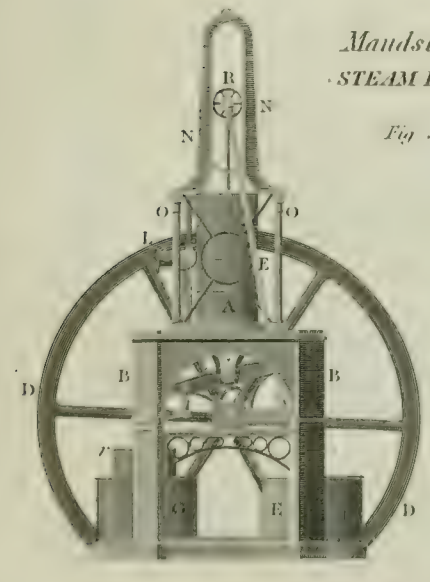
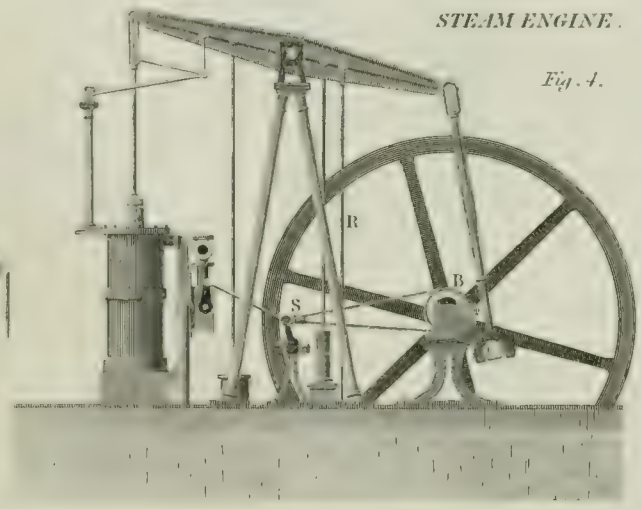


Fig. 5.

Murray's STEAM ENGINE.

Fig. 4.



J. Farey delin. Published as the Act directs, 1820, by Longman, Hurst, Rees Orme & Brown, Paternoster Row. W. Lowry, sc.

STEAM ENGINE.

High Pressure STEAM ENGINE used with the Dredging Machine on the River Thames.

Elevations

Fig 1

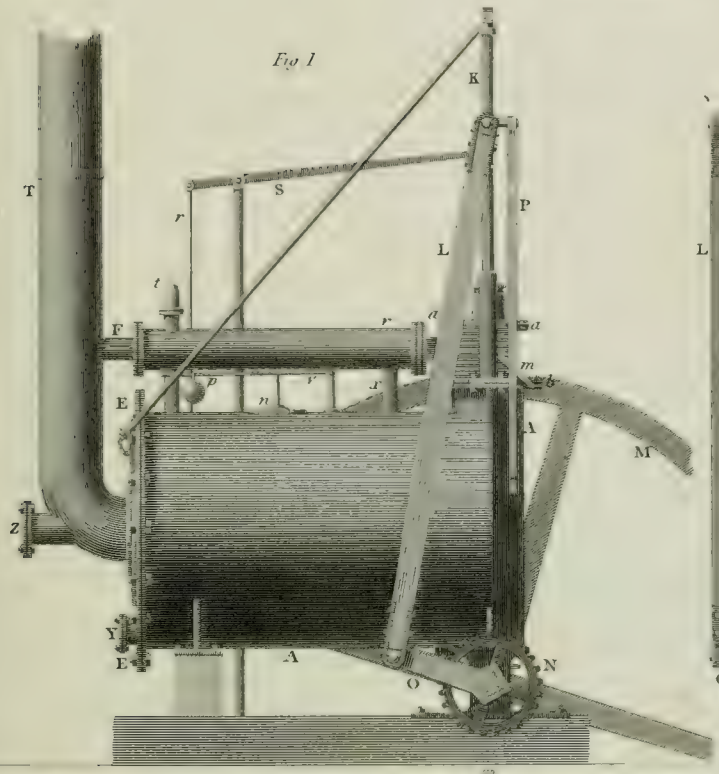


Fig. 2

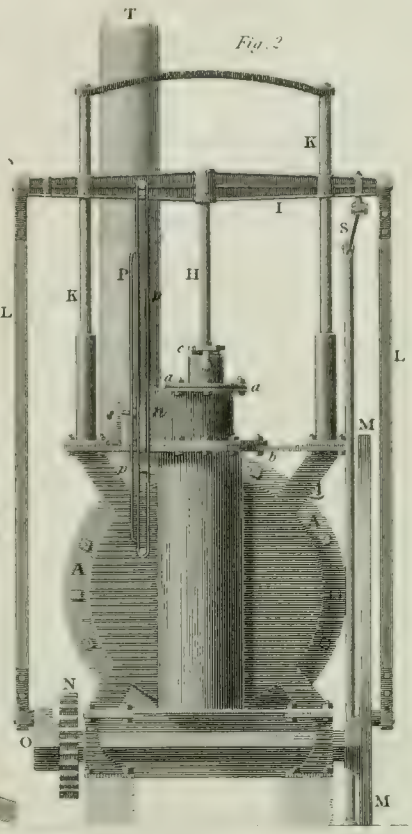


Fig. 3

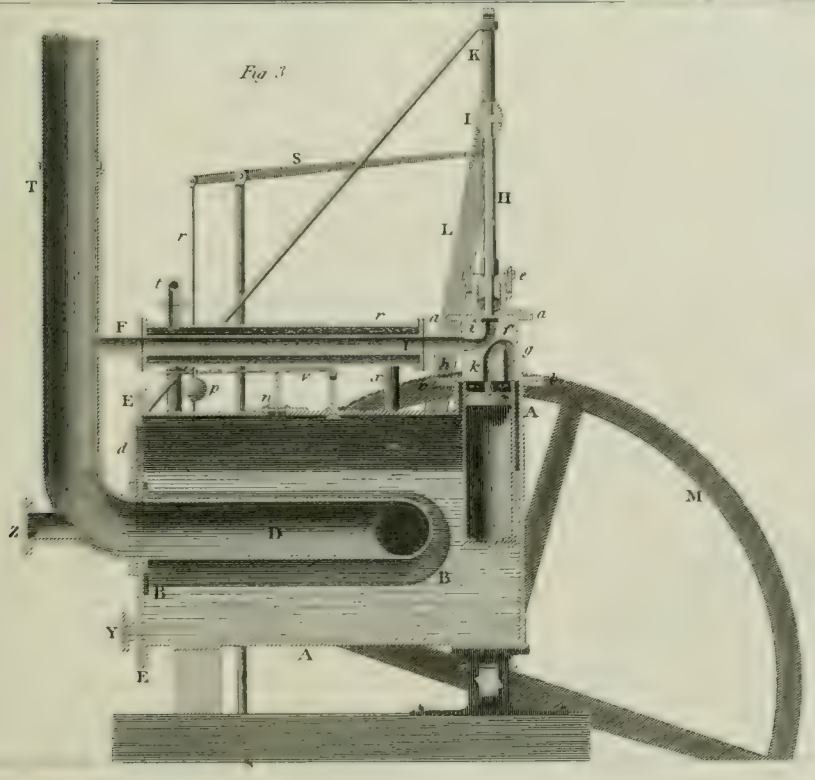
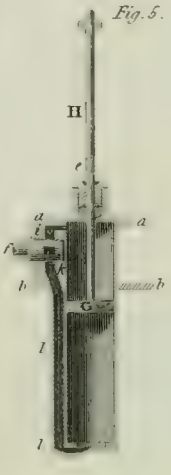


Fig 4

Fig. 5.



J. Farey Jun.^r delin.

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Lowry Sc.

STEAM ENGINE.

PARALLEL MOTIONS.

Fig. 3.

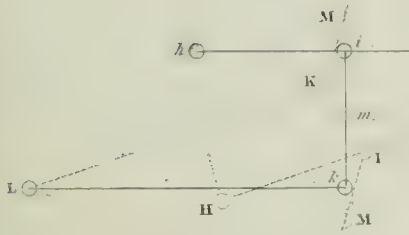
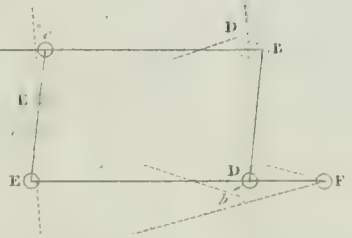


Fig. 1.



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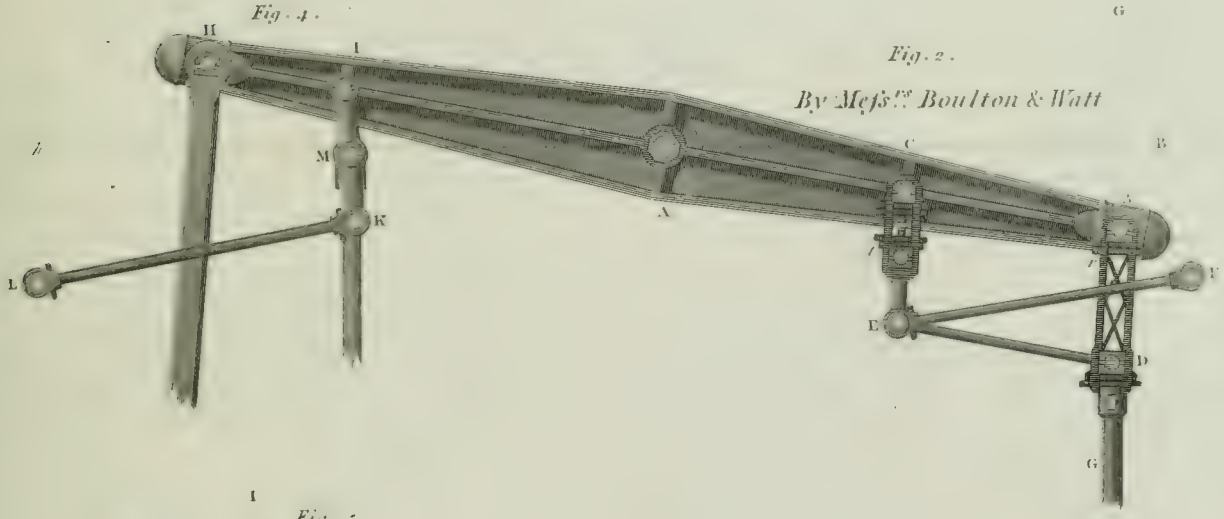
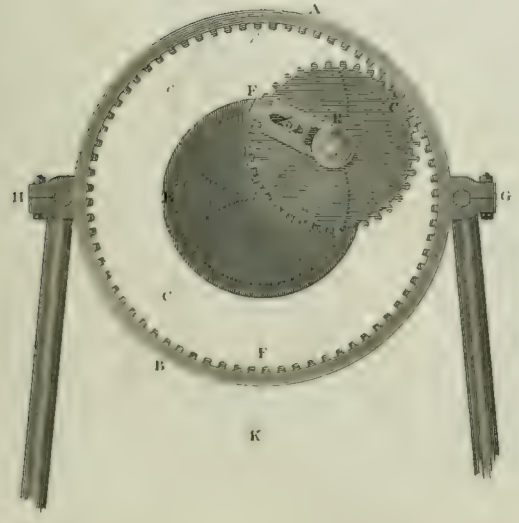


Fig. 2.

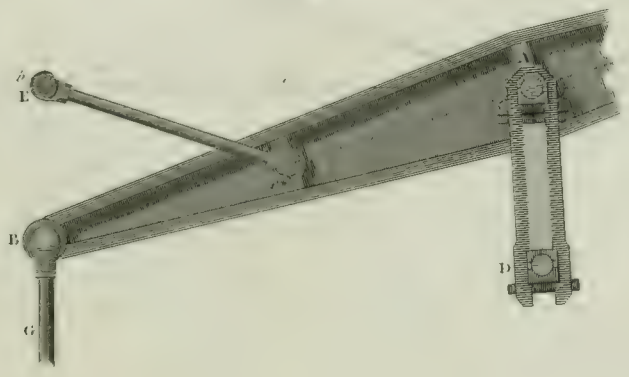
By Messrs. Boulton & Watt

Fig. 5.



By Mr. Freemantle

Fig. 6.



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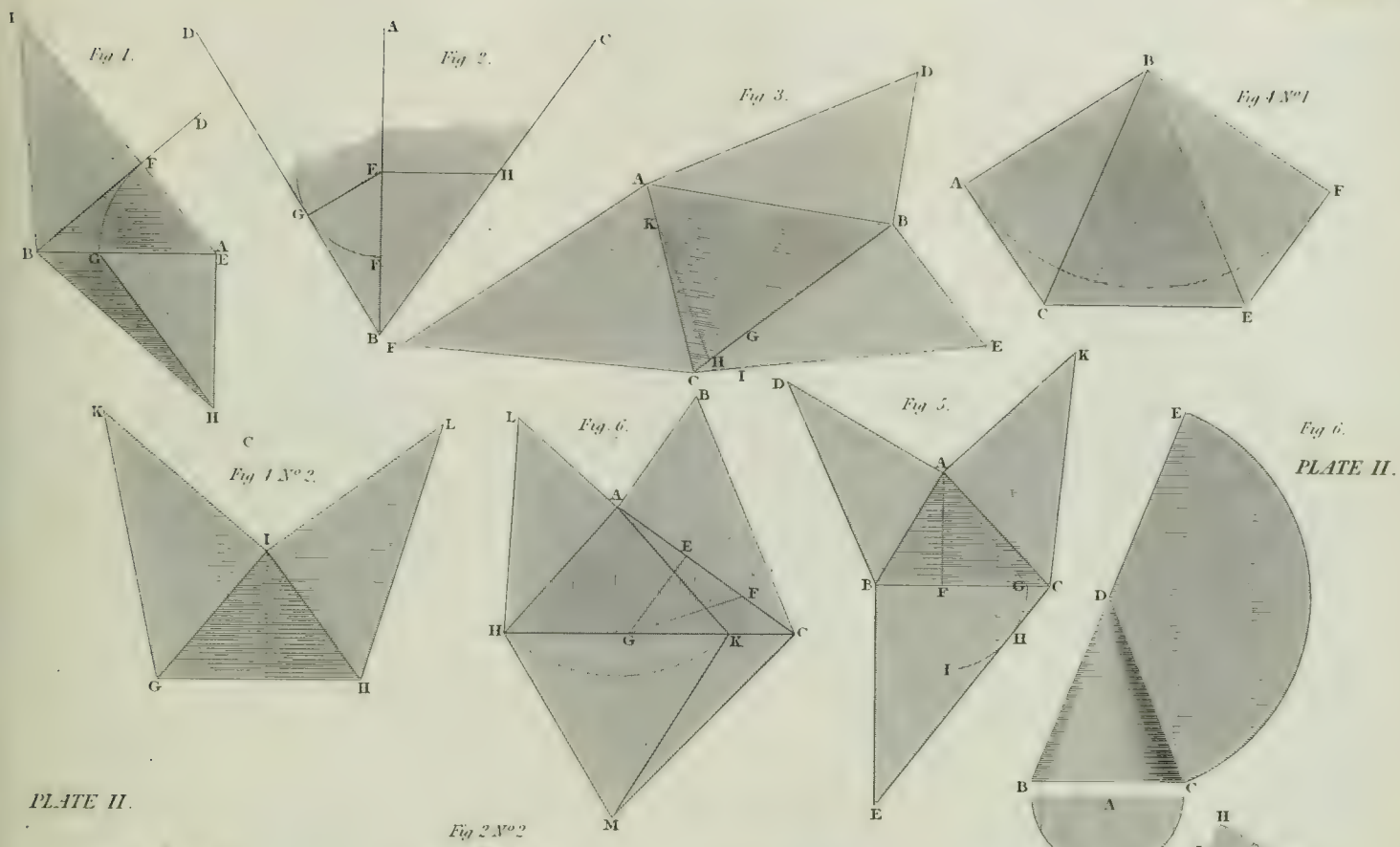
Engraved by W. Lowry.

STEREOGRAPHY.

PLATE I & II.



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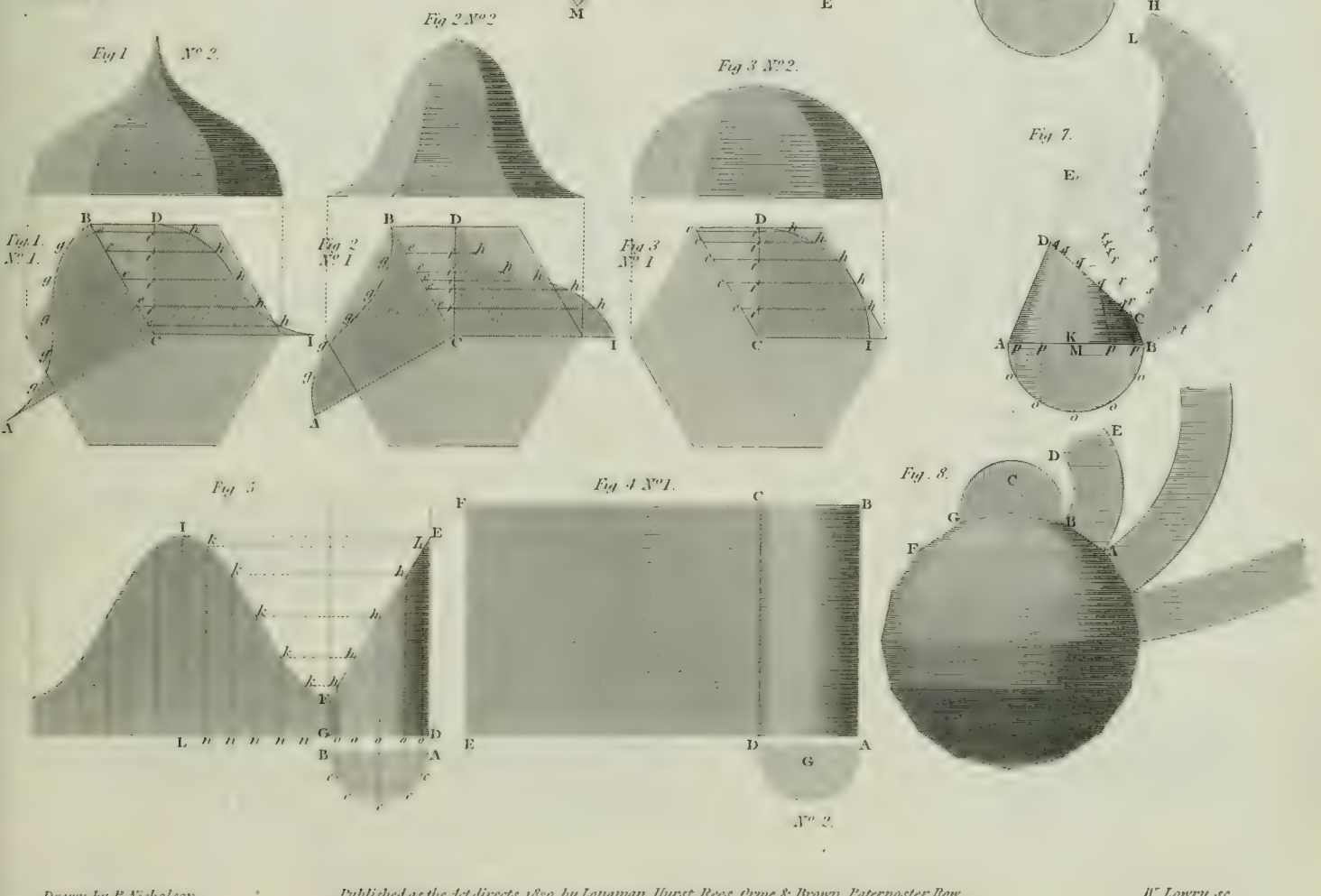

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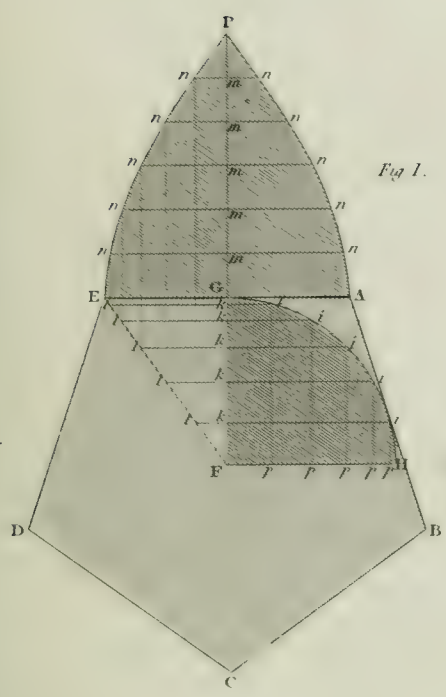

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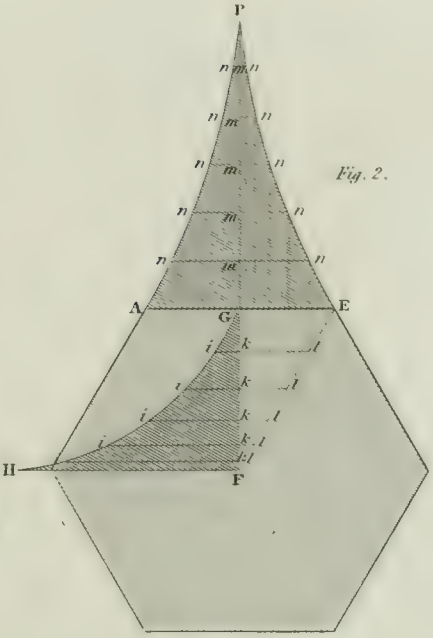

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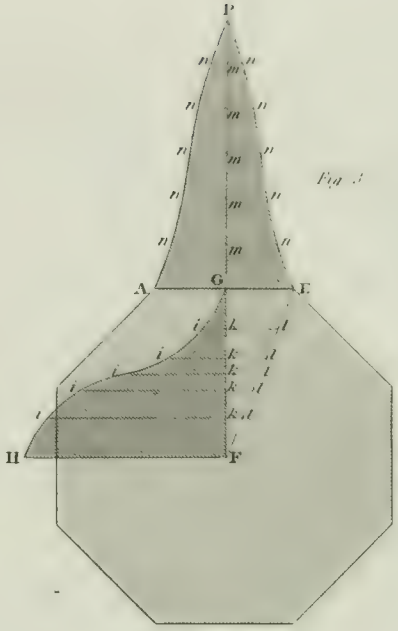
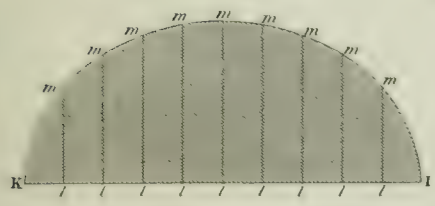


Fig. 3

Fig 8 N° 2.



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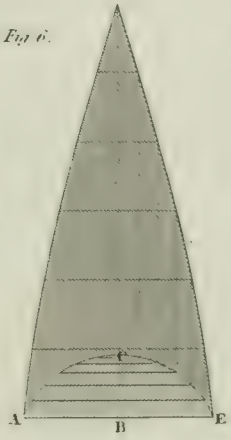
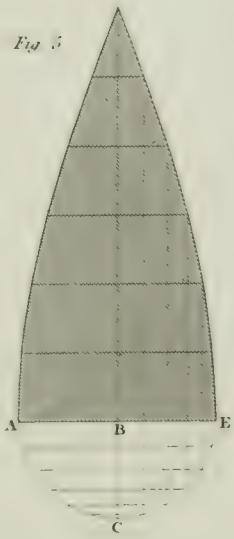


Fig 5



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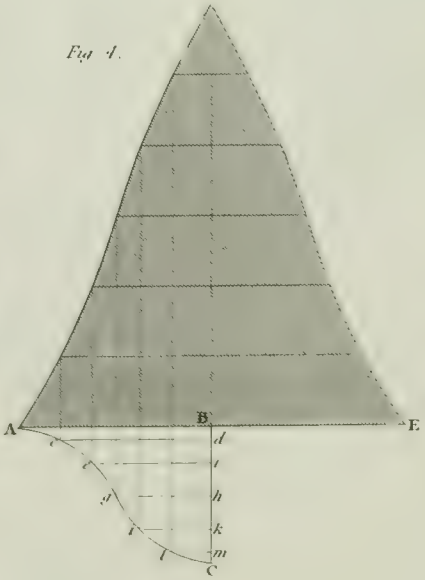
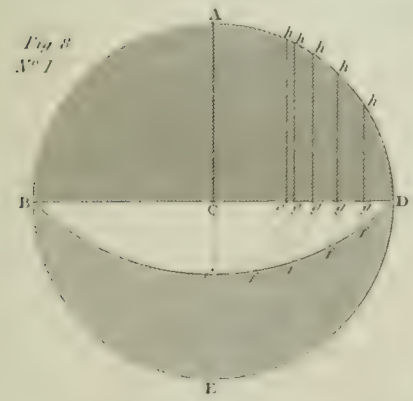


Fig 8
N° 1



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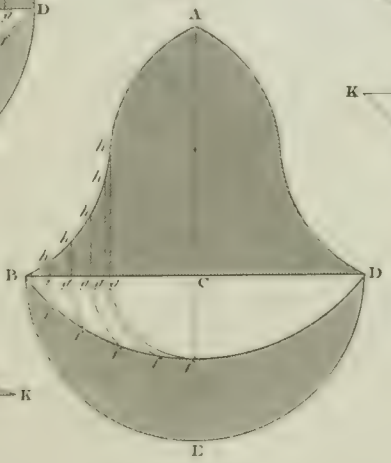

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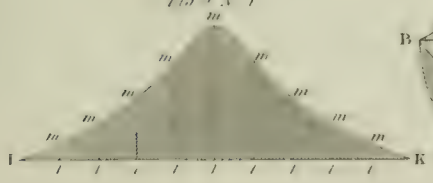

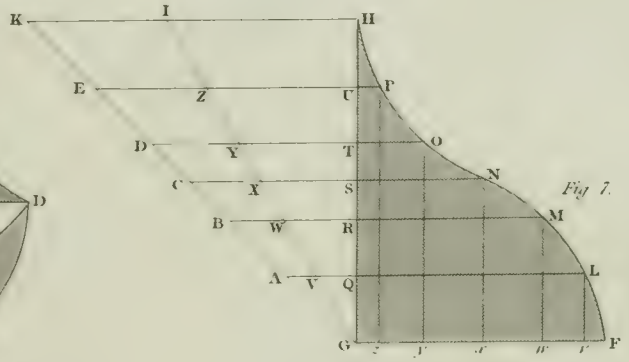

Fig 7.

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W. Lowry, sc.

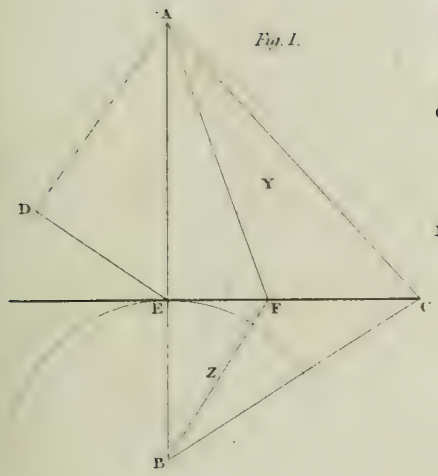
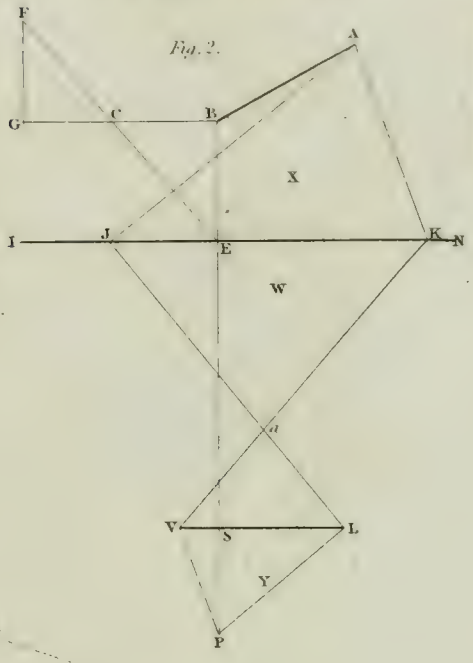


Fig. 1.



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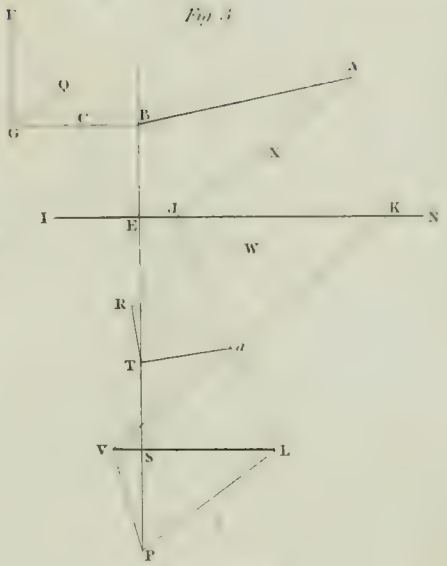
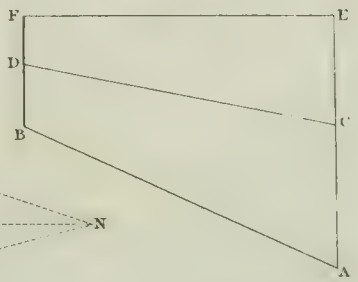
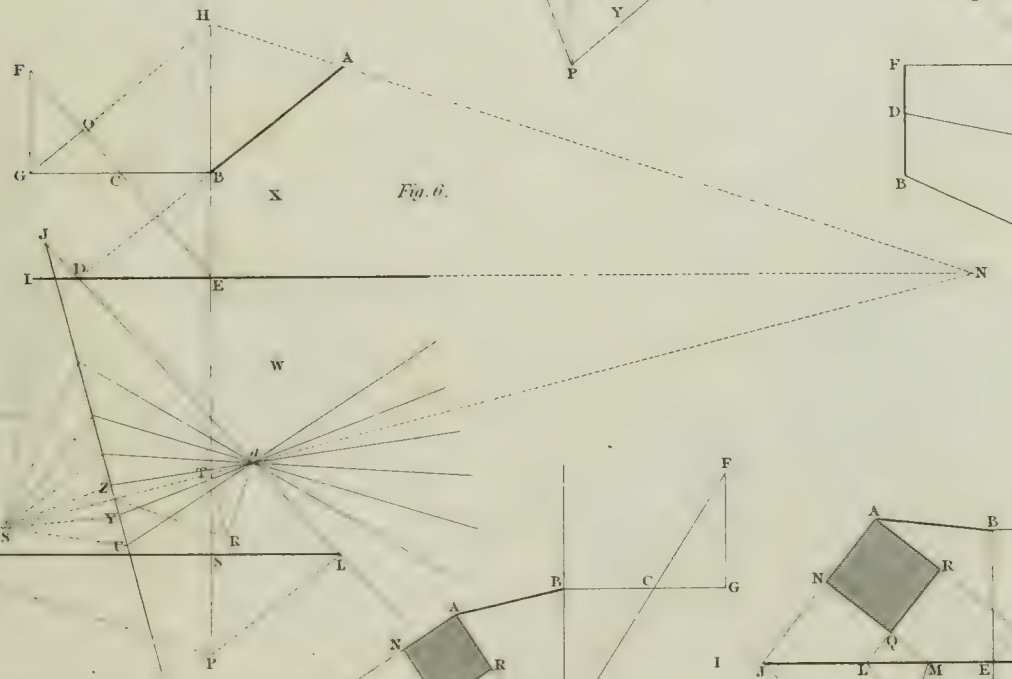


Fig. 3.

Fig. 4.





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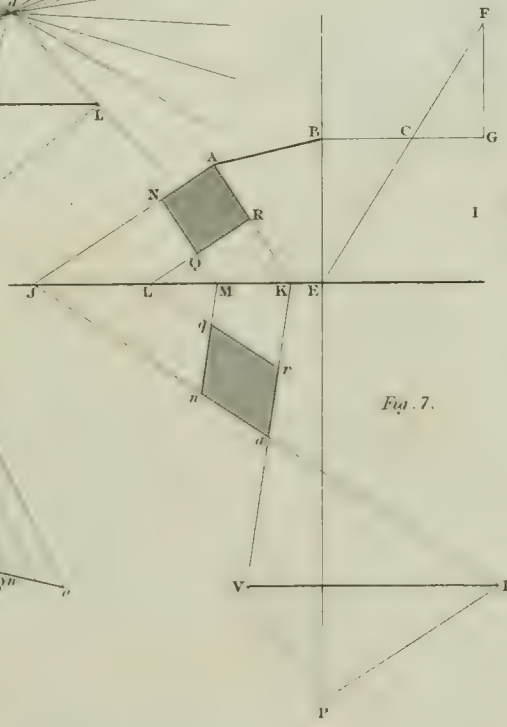

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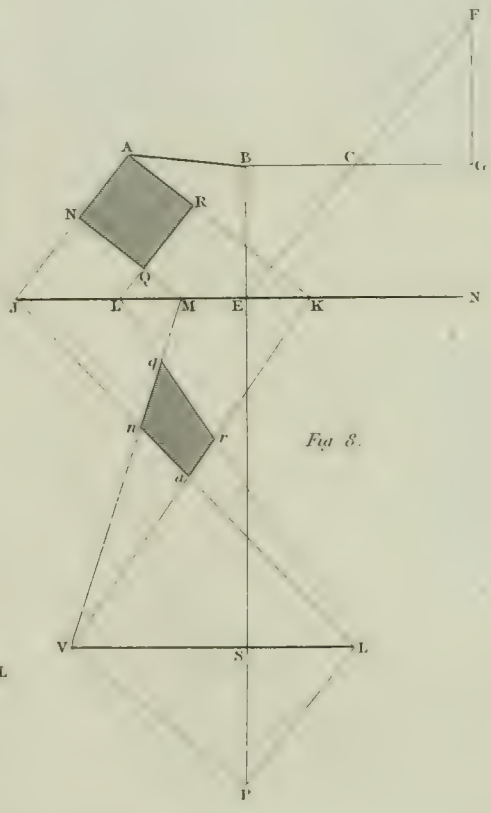

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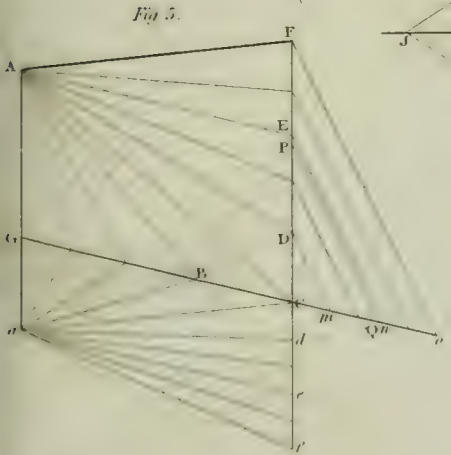

Fig. 5.

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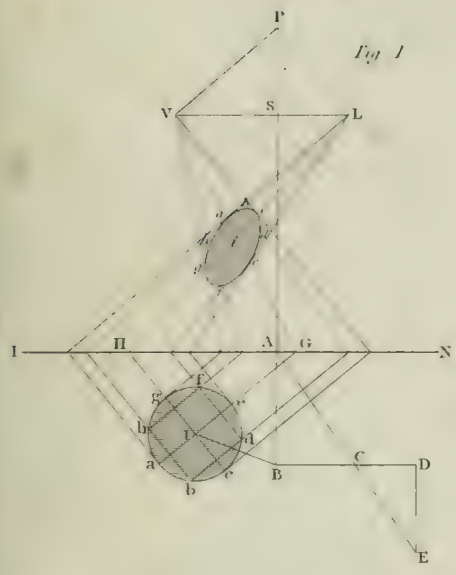
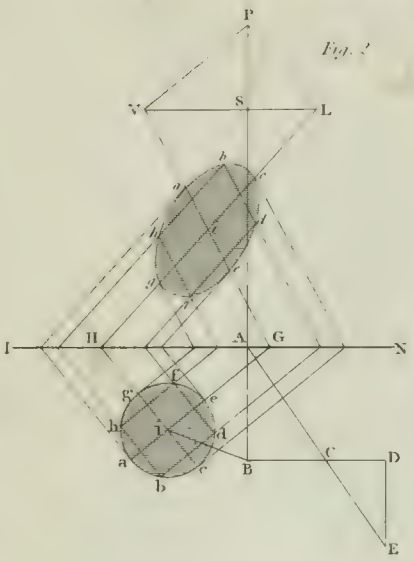
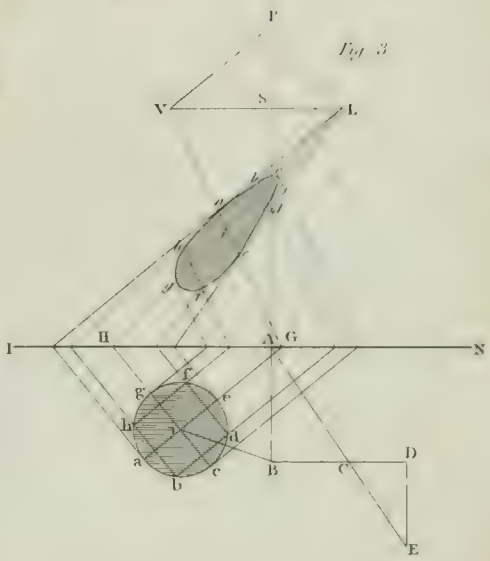
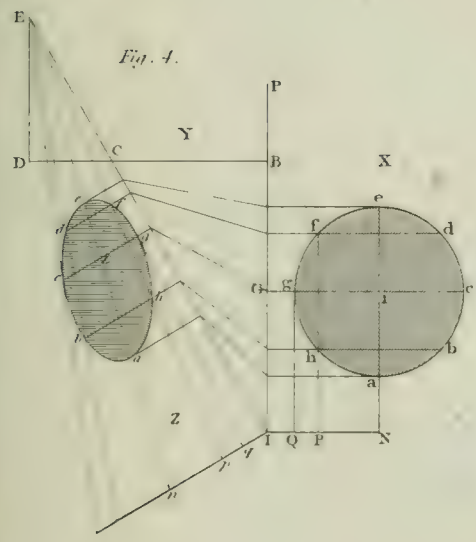
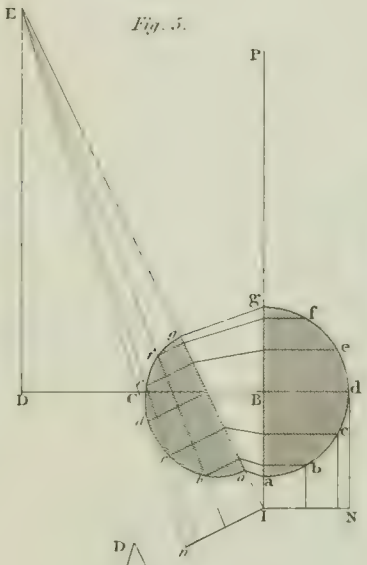
Lowry sculp.

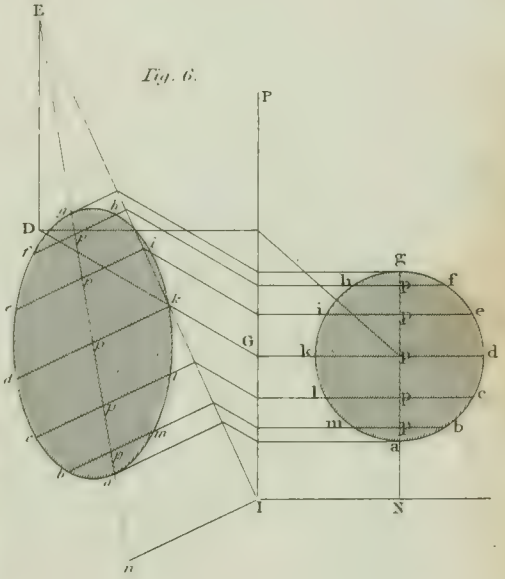


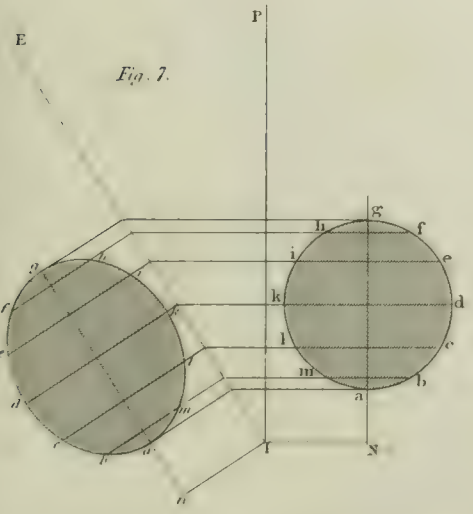


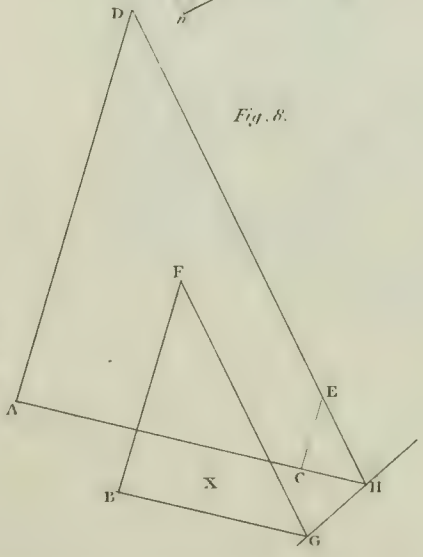


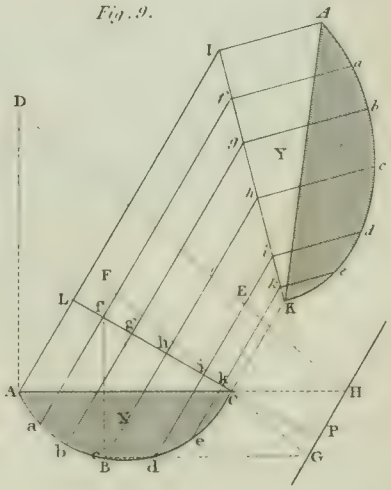












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STOCKING FRAME.

Fig. 1.

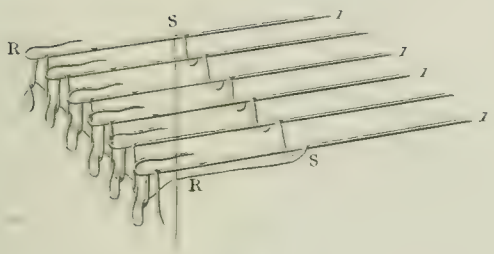
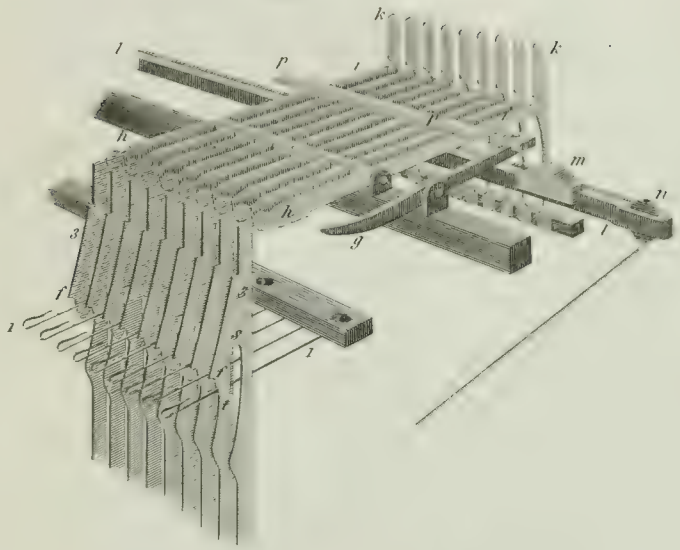


Fig 3



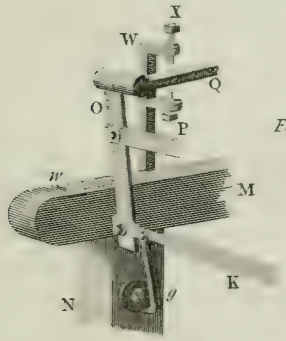


Fig 7

Fig 2.

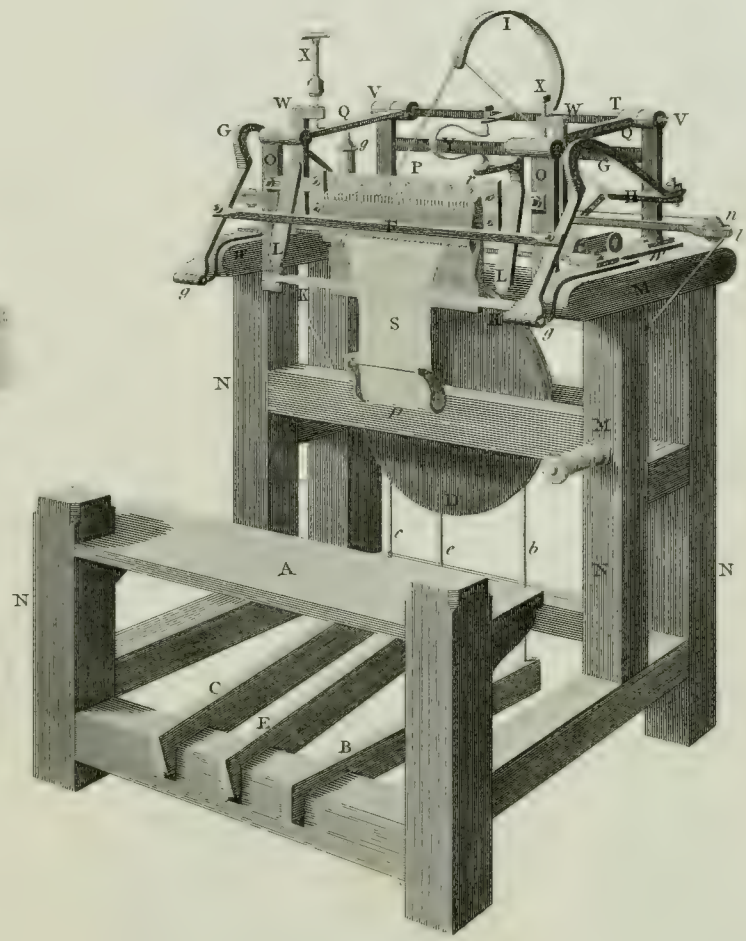
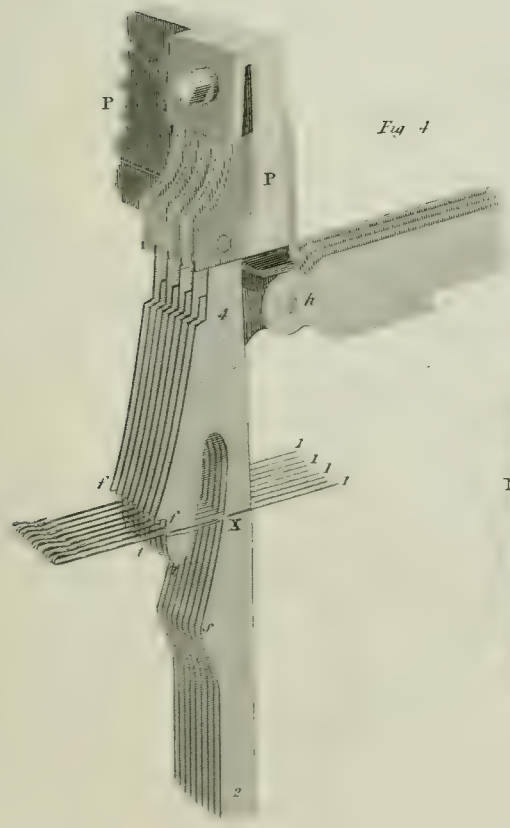


Fig 4



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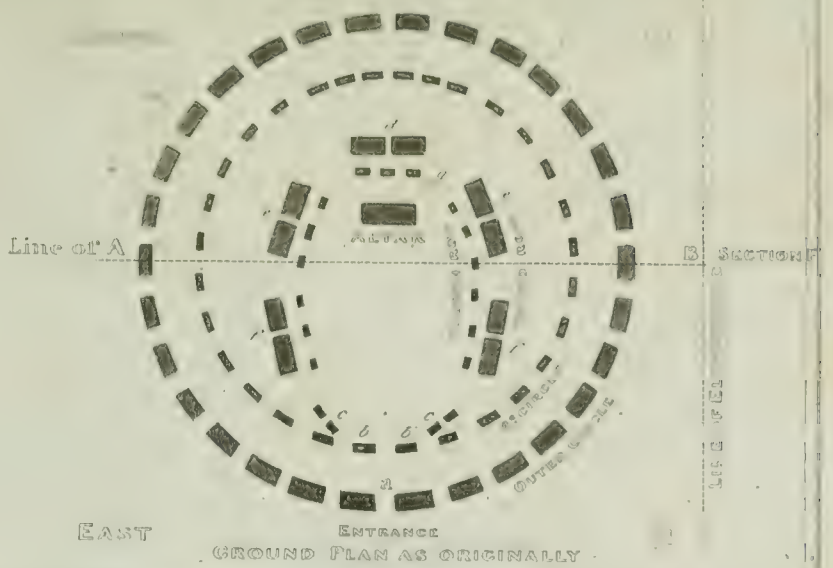
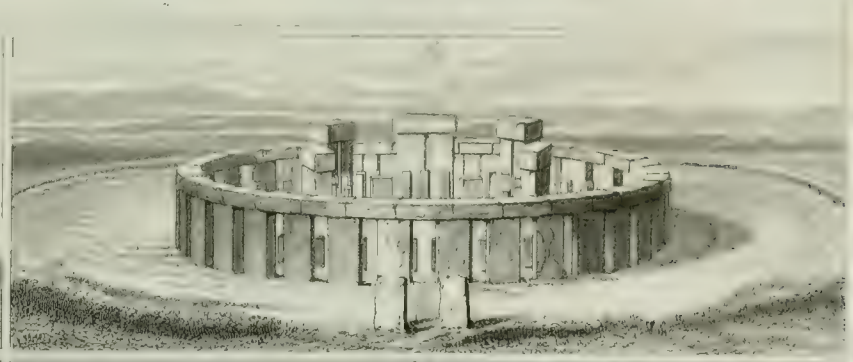
STONEHENGE

WILTSHIRE, ENGLAND

1816



GROUND PLAN AS ORIGINALLY



SEE PLAN D

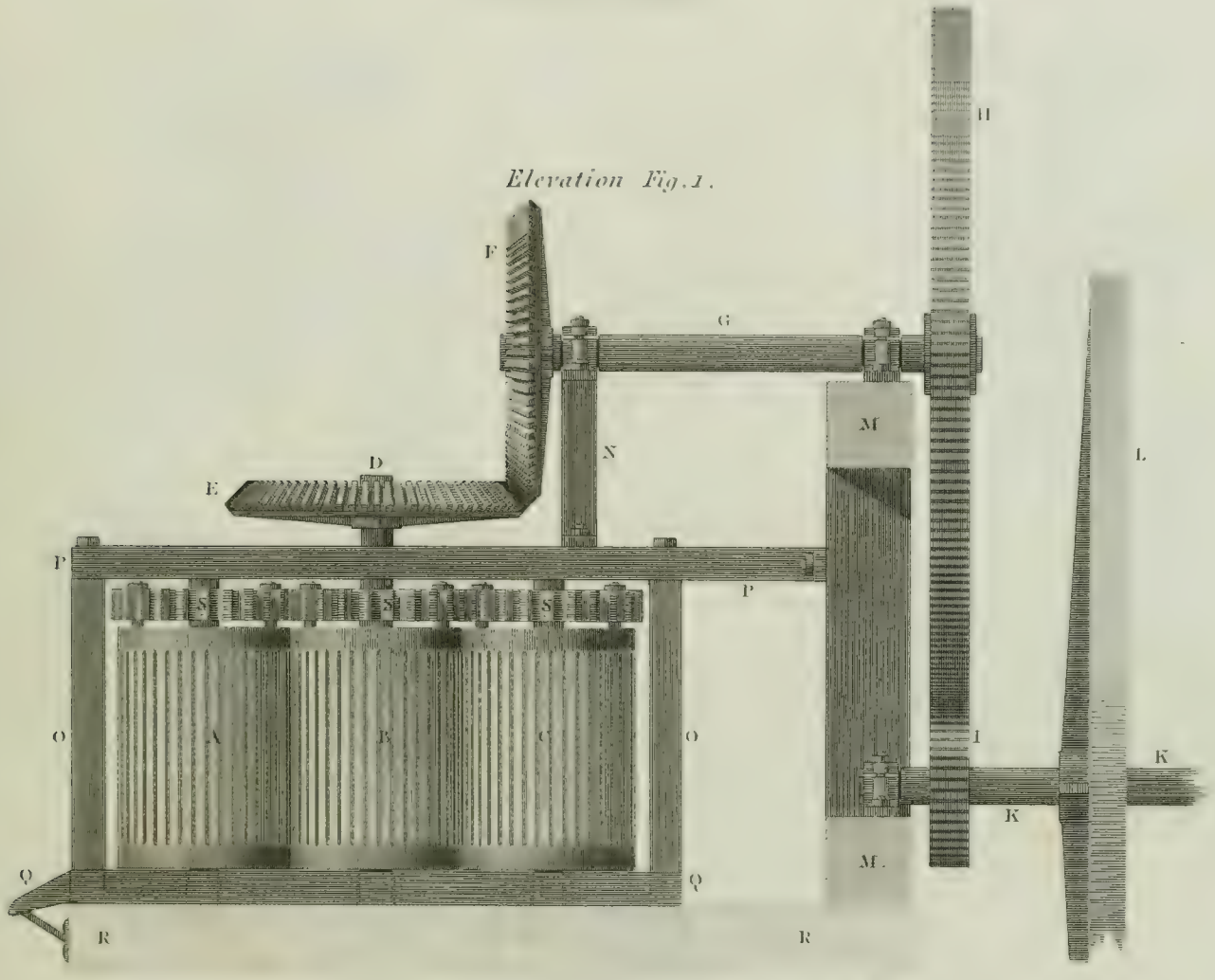
J. Britton, del: 1816.

London Publd 1816 by Longman Hurst Rees Orme & Brown Paternoster Row.

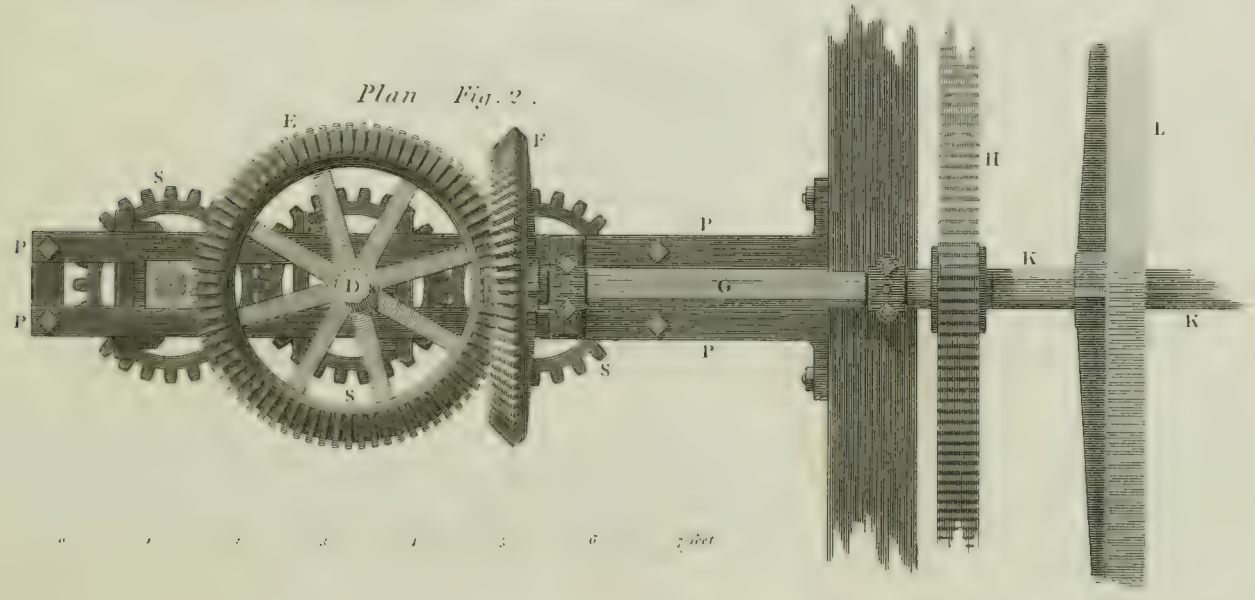
W. Lowry, sculp.

SUGAR MILL.

Elevation Fig. 1.



Plan Fig. 2.



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TOURNIQUETS AND AMPUTATING INSTRUMENTS.

Fig. 3.

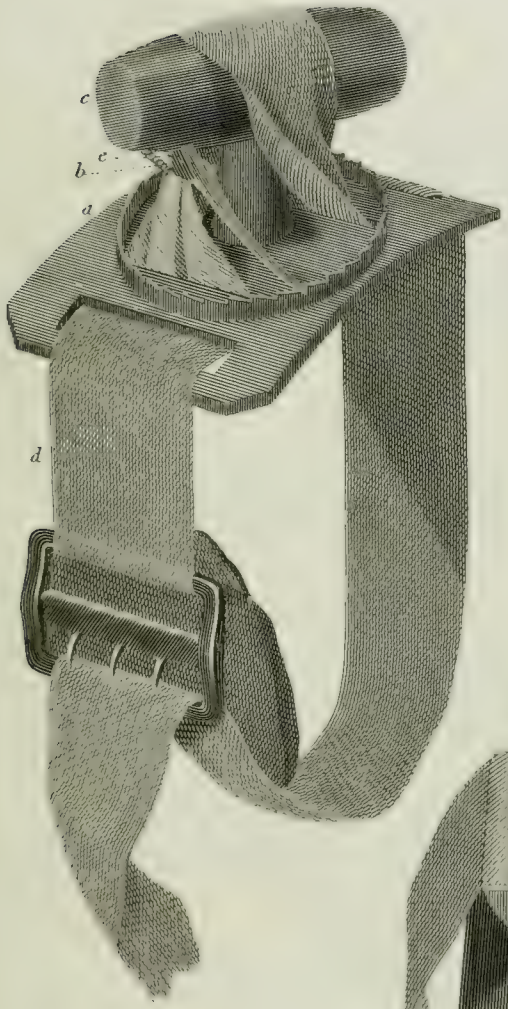
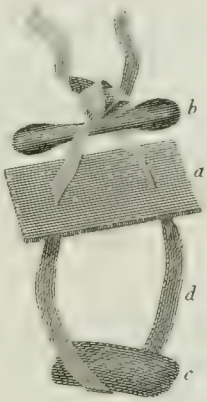


Fig. 1.



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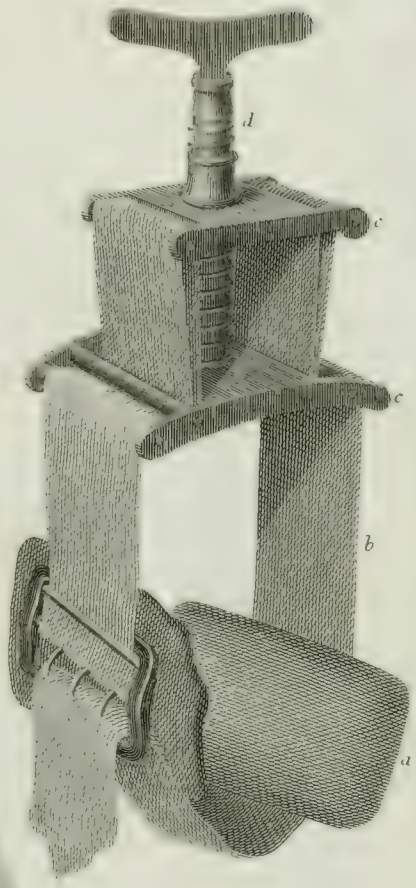

Fig. 4.

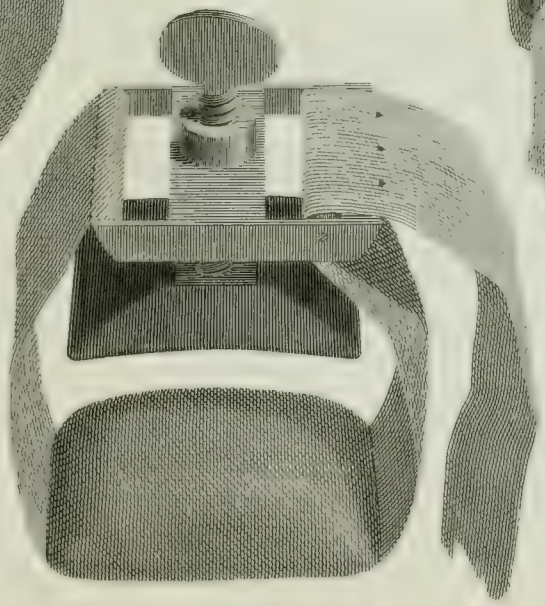

Fig. 5.

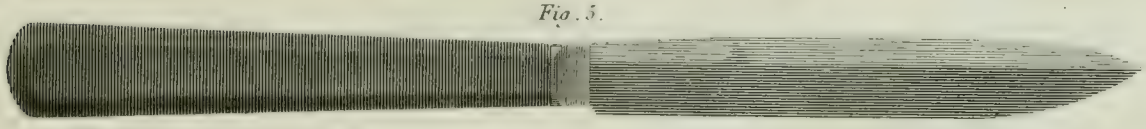

Fig. 6.

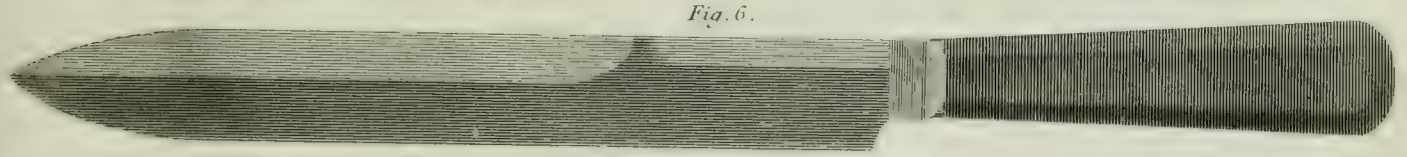

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Fig. 1. Amputating Saw.

Fig. 2. Large Amputating Knife.

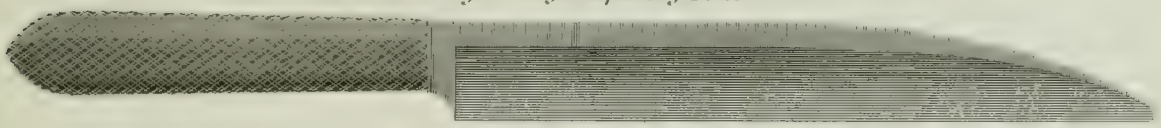

Fig. 3. One of smaller size.

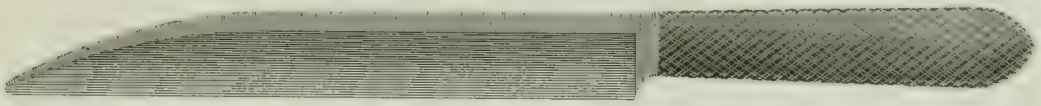

Fig. 4. Catling.

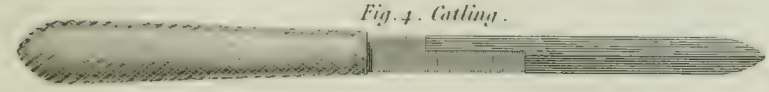

Fig. 5. Metacarpal Saw.

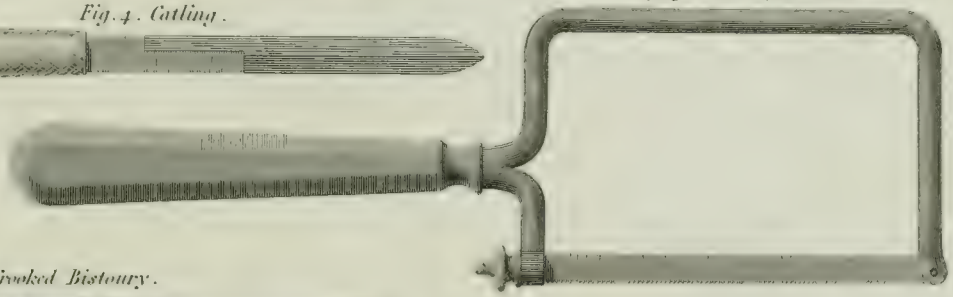

Fig. 6. Crooked Bistoury.

Fig. 7. Probe pointed crooked Bistoury.

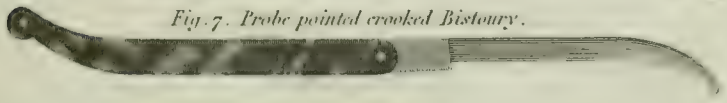

Fig. 8. Straight double edged Scalpel.

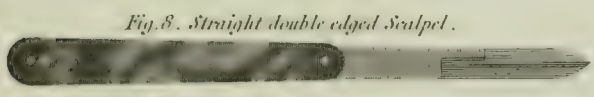

Fig. 9. Tenaculum.

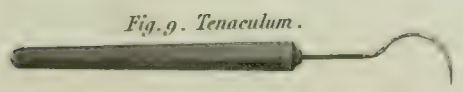

Fig. 10. Aneurysm Needle.

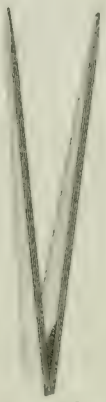

Fig. 11.

Forceps for taking up the mouths of vessels. Employed also in several operations, in which careful dissection is requisite.

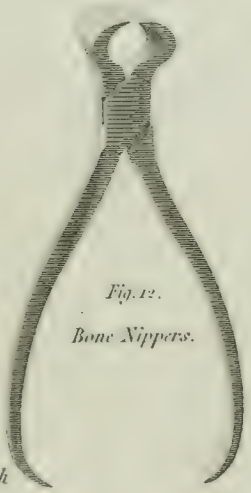

Fig. 12.

Bone Nippers.

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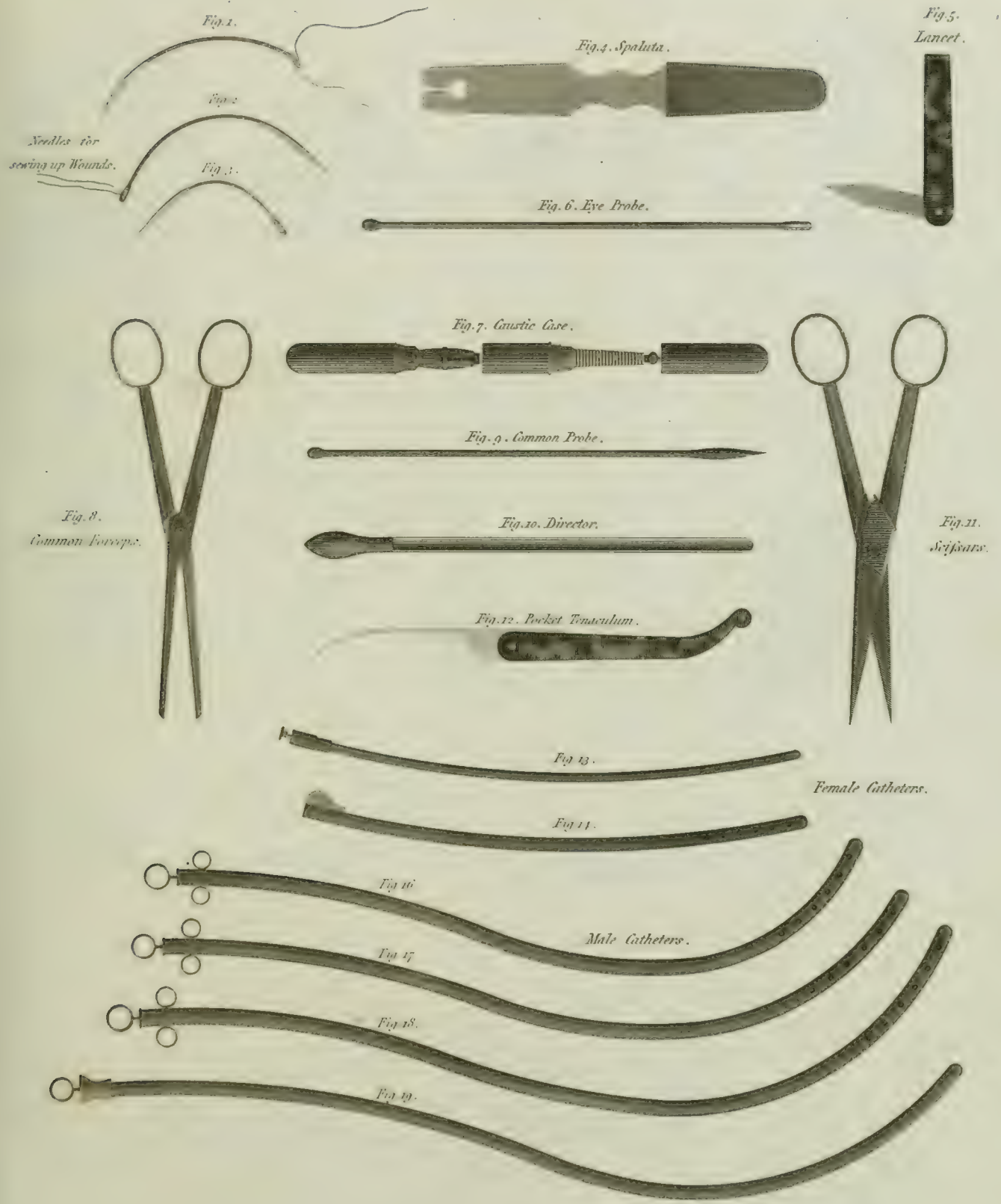

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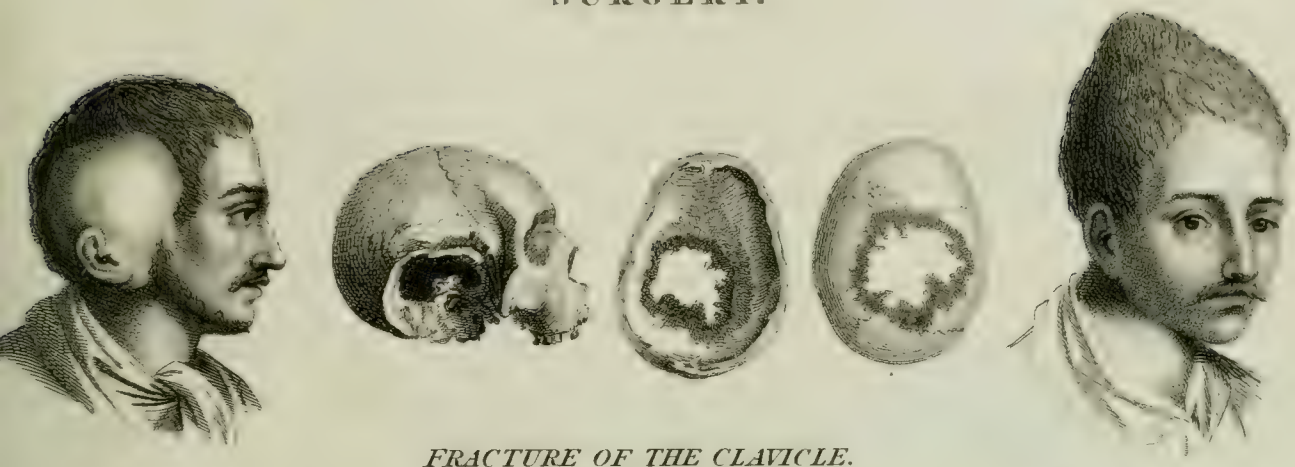
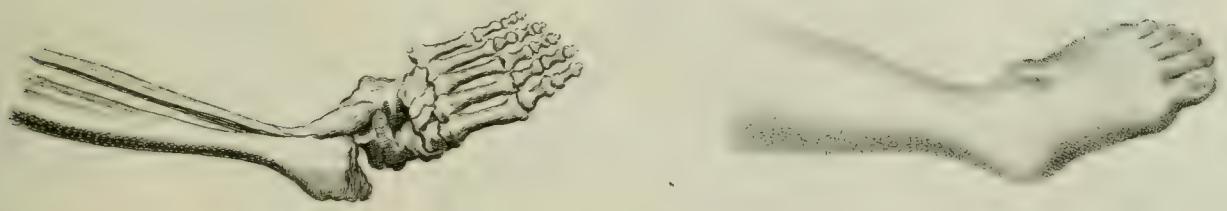
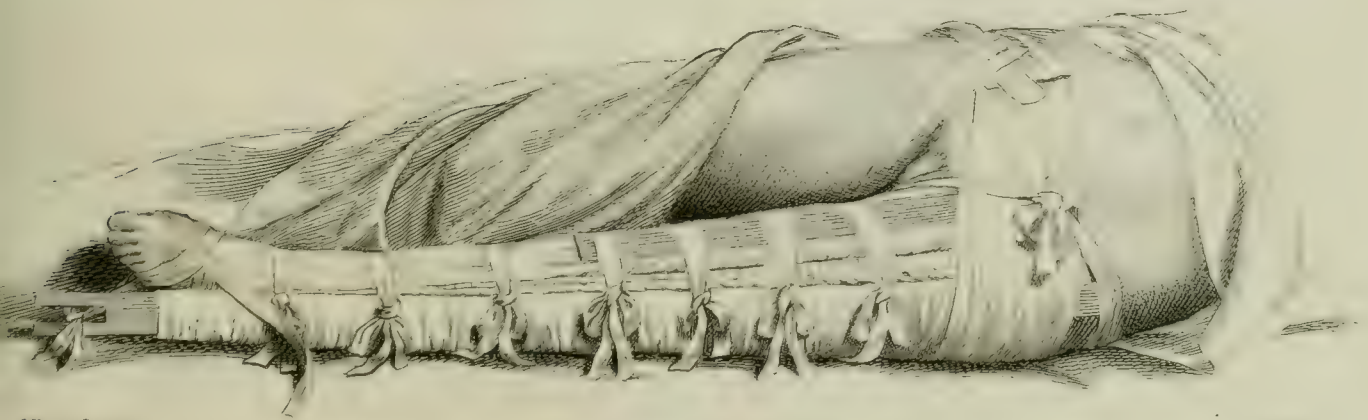
SURGERY.



FRACTURE OF THE CLAVICLE.





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SURGERY.

FRACTURE OF THE LEG.

SPLINTS.

BANDAGES.

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Lowry sculp

SURGERY.

Instruments for Lithotomy.

Fig. 1.
Mr. Earle's Stone Breaker.

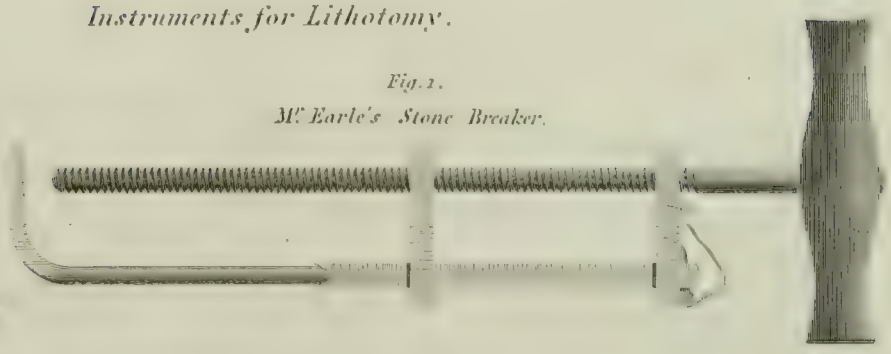


Fig. 3.
Mr. Chas. Bell's Staff with the groove on the side.

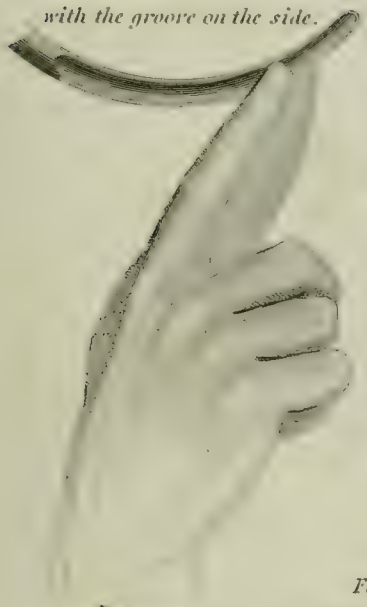


Fig. 2.
Scoop

Fig. 4.
Mr. A. Burn's knife and Staff.

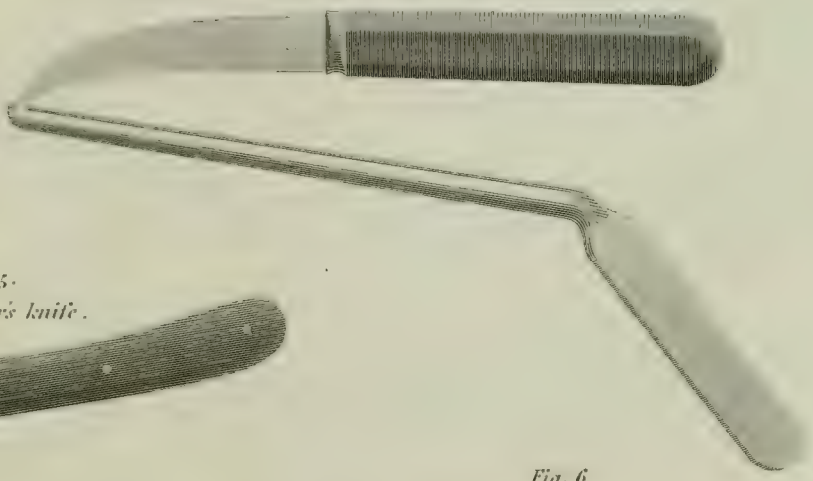


Fig. 5.
Mr. Hunter's knife.

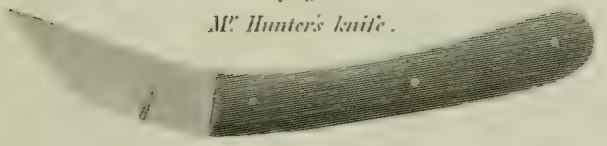


Fig. 6.
Mr. A. Cooper's knife.

Screw, by which the distance, to which the blade shall move out may be best regulated.

Fig. 7.
Mr. Thos. Blizard's knife.

Fig. 9.

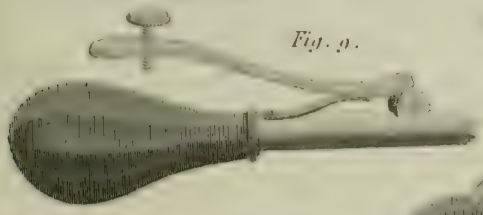
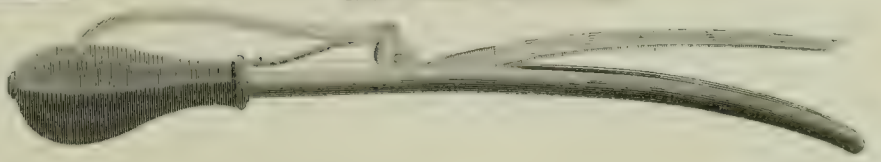


Fig. 8.
Frere Cosme's Bistoire Caché.



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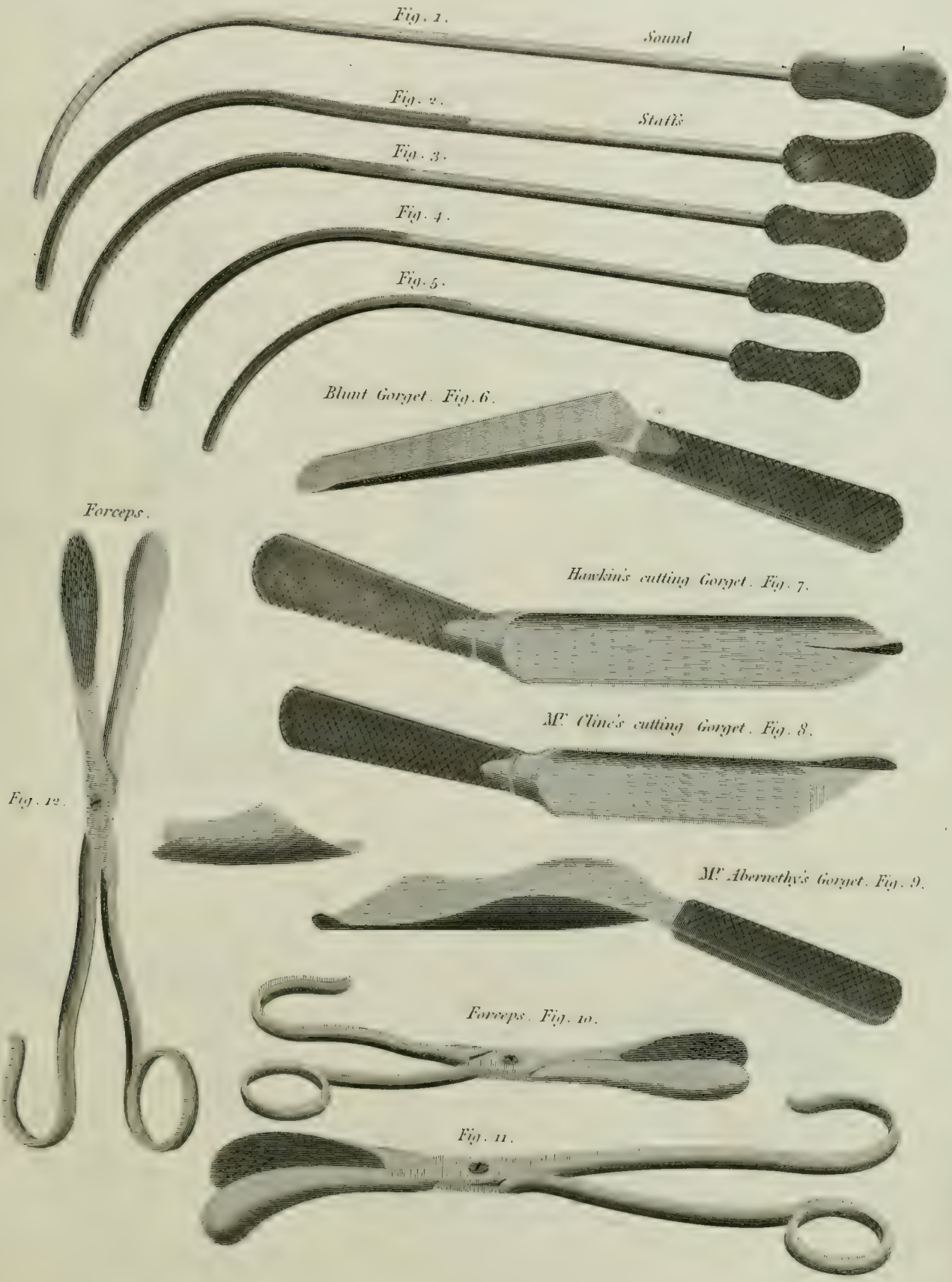
SURGERY.

Instruments for Lithotomy.



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TRIPOD ELEVATOR.

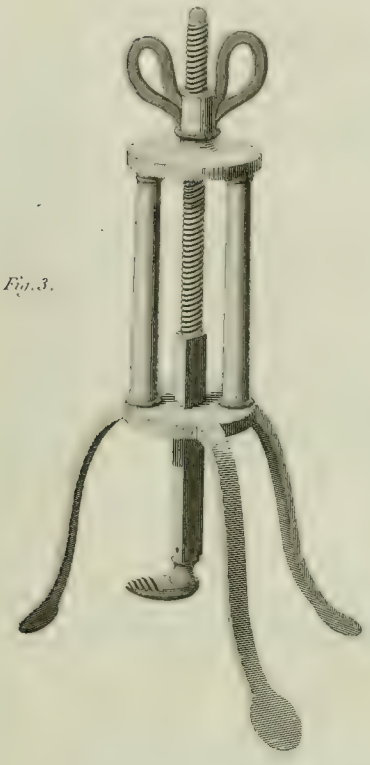


Fig. 3.

Fig. 2.

ELEVATOR for Raising Depressed Portions of a FRACTURED SKULL.

Mr. RODMANS TREPANNING INSTRUMENT.

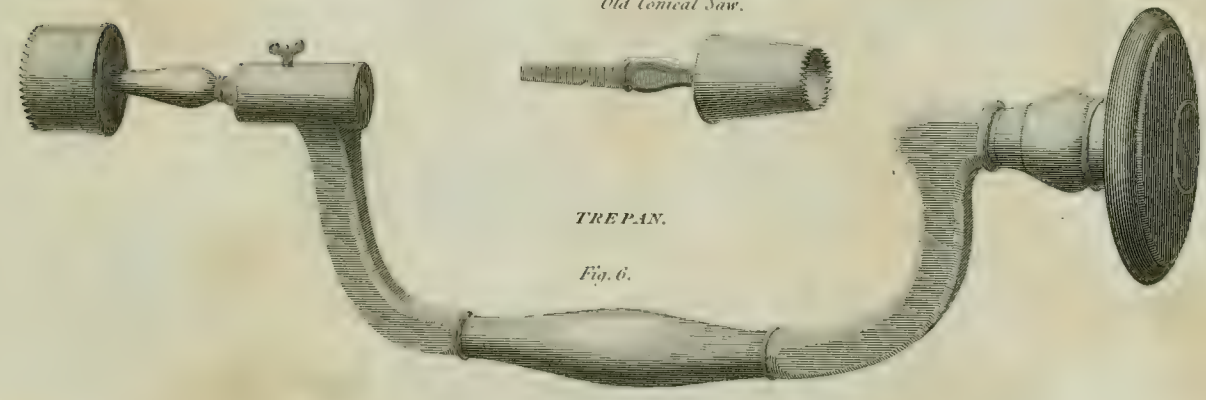
Fig. 1.

ELEVATOR of I.L.PETIT as improved by M.LOUIS.

Fig. 4.

Fig. 5.

Old Conical Saw.



TREPAN.

Fig. 6.

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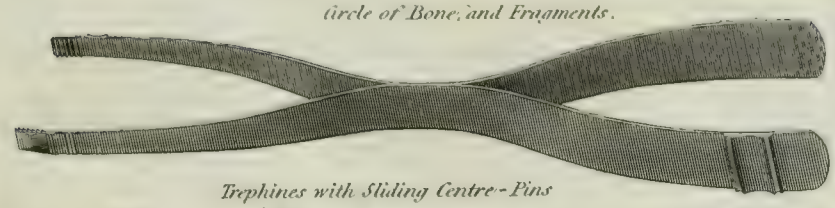
SURGERY.

TREPANNING INSTRUMENTS.

Fig. 1. Spring Forceps for Extracting the Circle of Bone, and Fragments.



Trephines with Sliding Centre-Pins as made by Savigny.

Fig. 2.

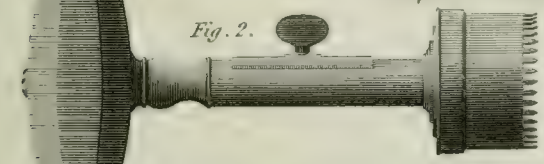


Fig. 3.

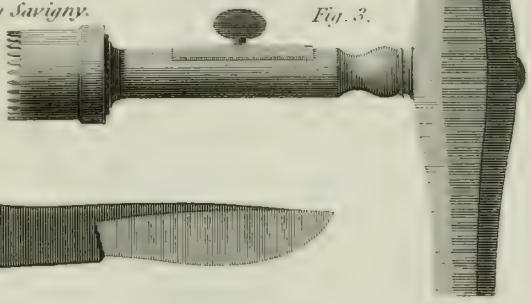


Fig. 4. Scalpel.

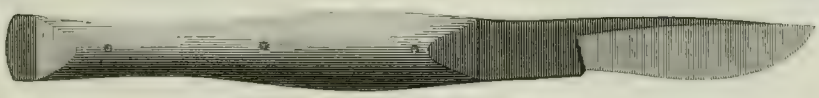


Fig. 5. Common Elevator.

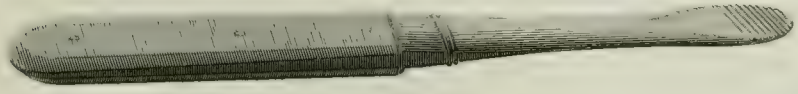


Fig. 6. Mr. Hey's, Saws with Curved Edges.

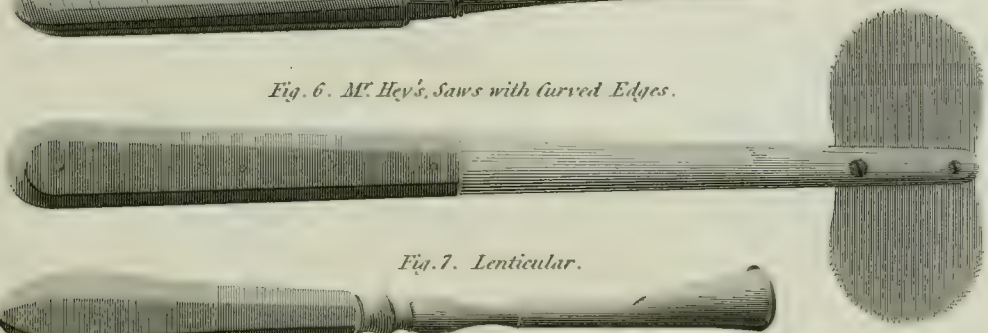


Fig. 13. Centre-pin and Screw.

Fig. 7. Lenticular.

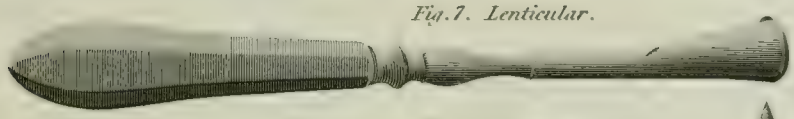


Fig. 8. Raspatory.

Fig. 9. Mr. Hey's, small straight Saw.

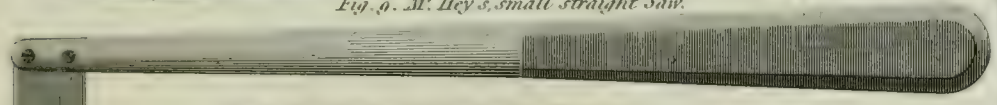


Fig. 10. Trephine with half of its Sawing Edge filed away.

Brush for cleaning the Teeth of the Trephine.

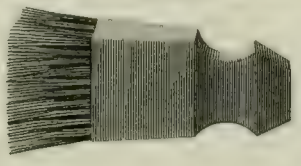


Fig. 11.

Fig. 12. Mr. Hey's, large straight Saw.

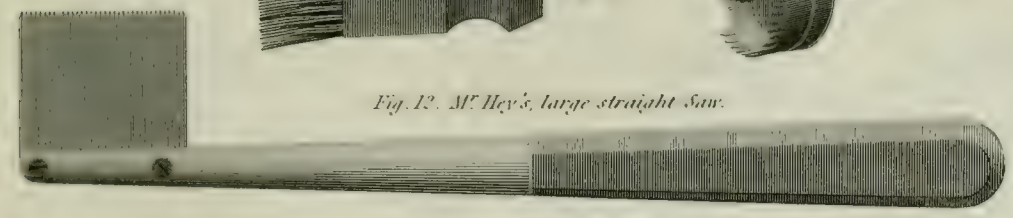


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Fig. 1.

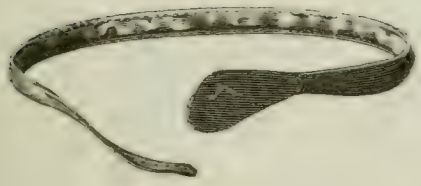


Fig. 2.

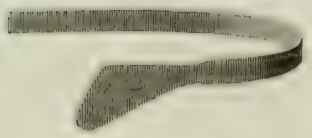
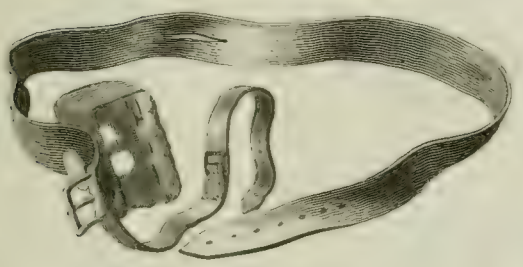


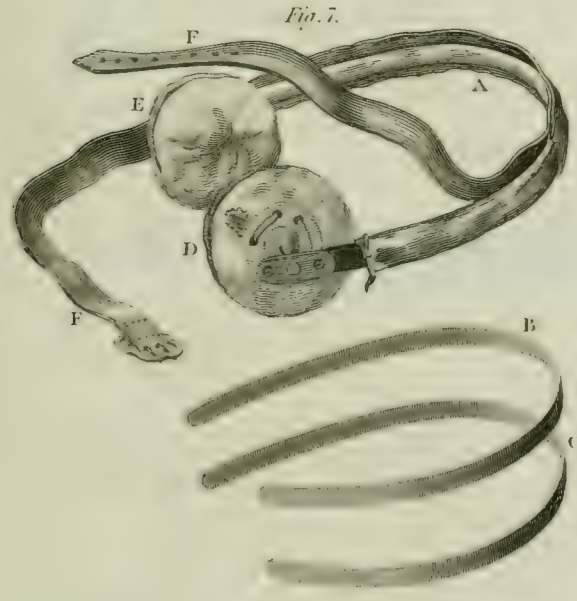
Fig. 3.

Fig. 4. Dr. Hulme's Palm Truss.



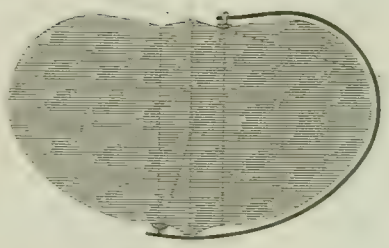
Mr. Whitford's Fig. 5.

Fig. 7.



Mr. Salmon's Patent.

Fig. 7.



Mr. Marrison's ter Exemphales Fig. 8.

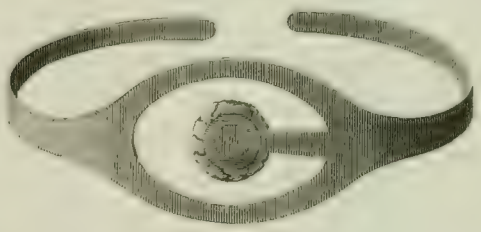
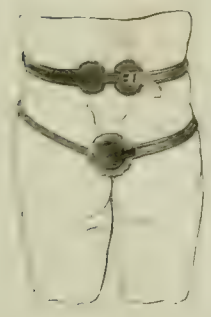


Fig. 10.



Mr. Eagland's Fig. 9.

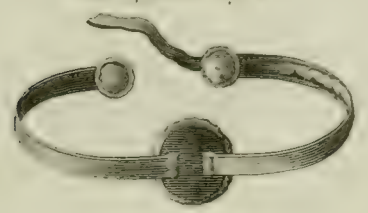


Fig. 11.

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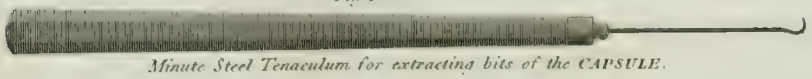
SURGERY.

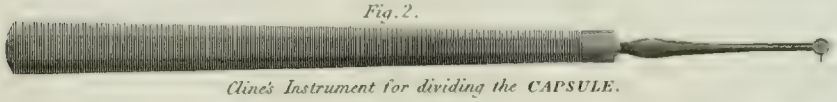
Instruments for the Extraction of the **CATARACT**,
and for the Fistula Lachrymalis.

Fig 1



Minute Steel Tenaculum for extracting bits of the **CAPSULE**.

Fig. 2.



Cline's Instrument for dividing the **CAPSULE**.

La Faye's Cystotome for dividing the **CAPSULE**.

Fig. 3.

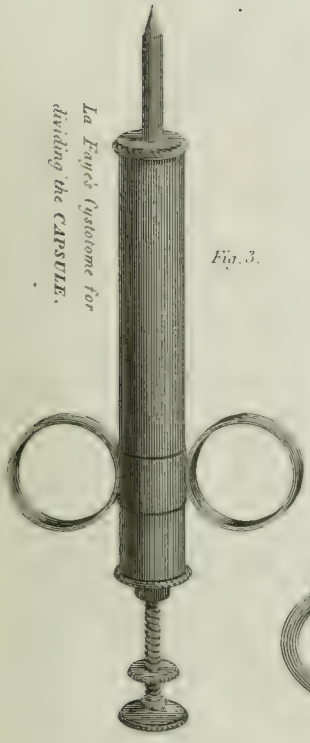
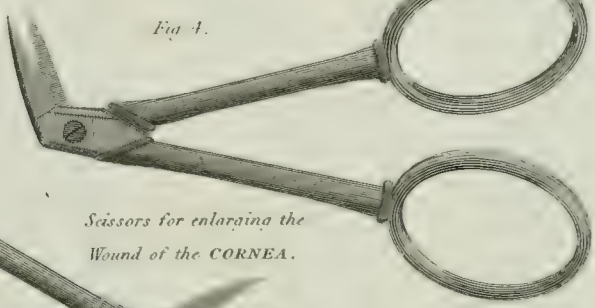


Fig 4.



Scissors for enlarging the Wound of the **CORNEA**.

Fig 5.

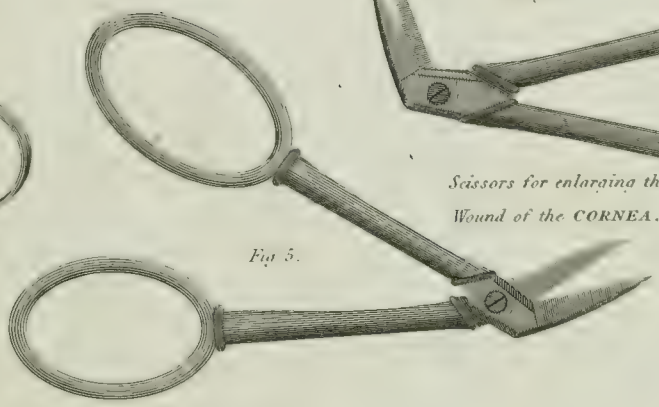
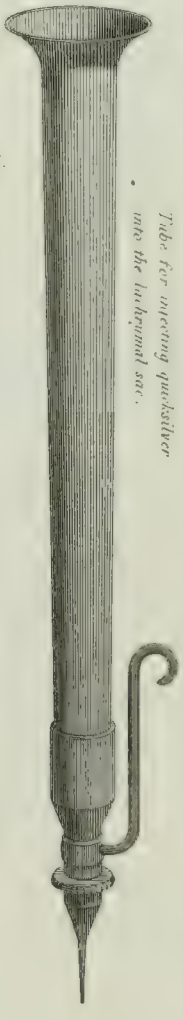


Fig. 6.



Tube for injecting quicksilver into the lachrymal sac.

Anel's Syringe and Pipes.

Fig. 7.

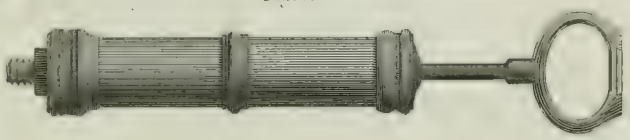


Fig 8.

Fig. 9

Fig. 10.

Wathen's Tubes.

Ware's Stiles.

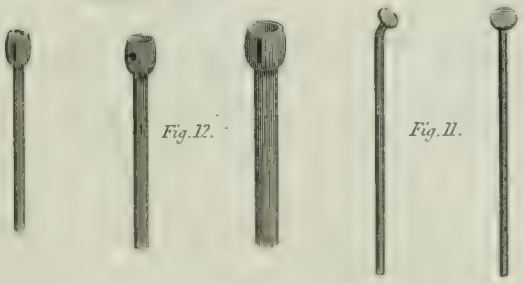
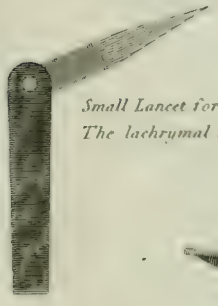


Fig. 12.

Fig. 11.

Small Lancet for puncturing The lachrymal sac.

Fig 13



Gibson's Knife for **LITHOTOMY**.

Fig. 14.

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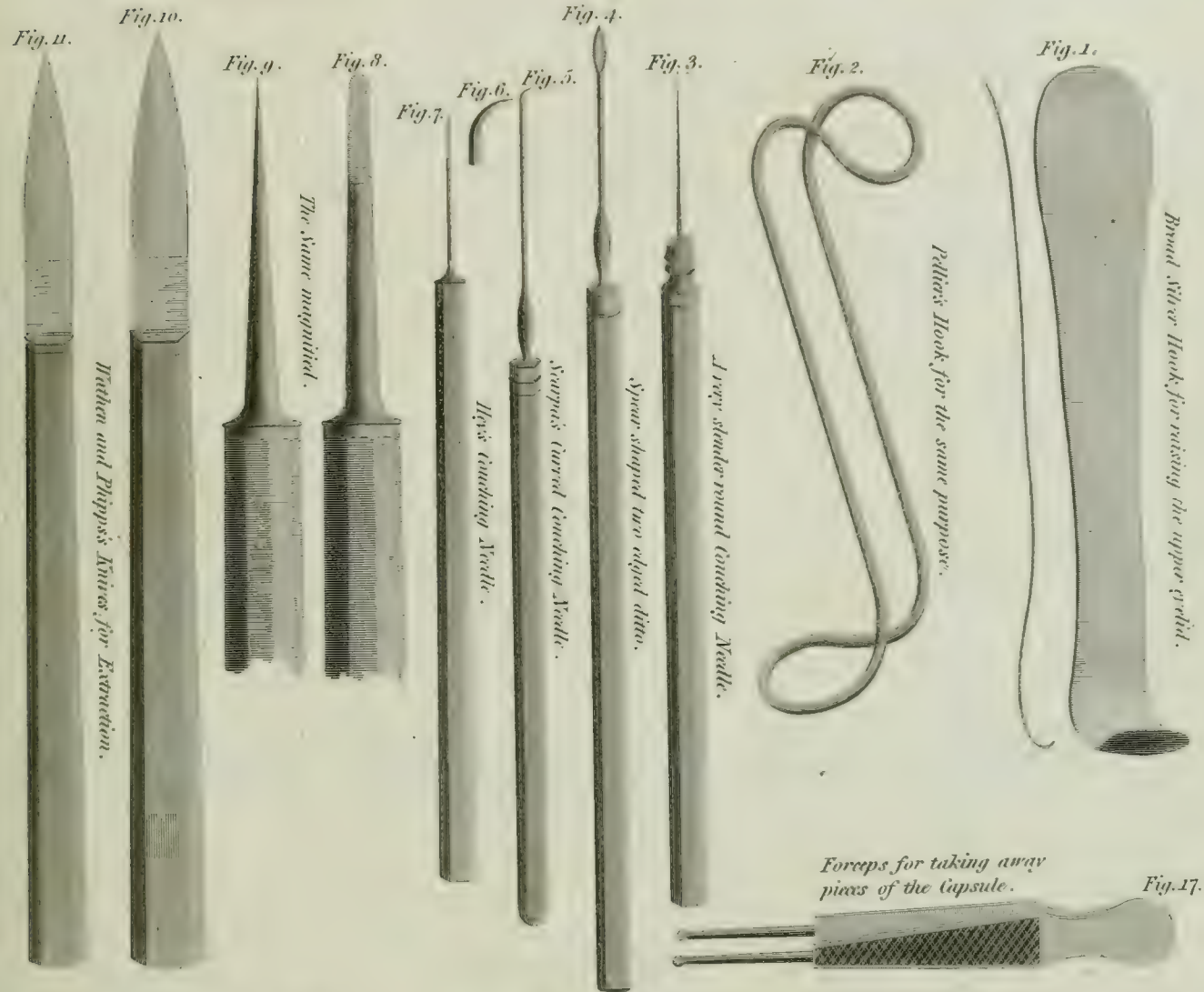
Instruments for Couching and the Extraction of the Cataract.



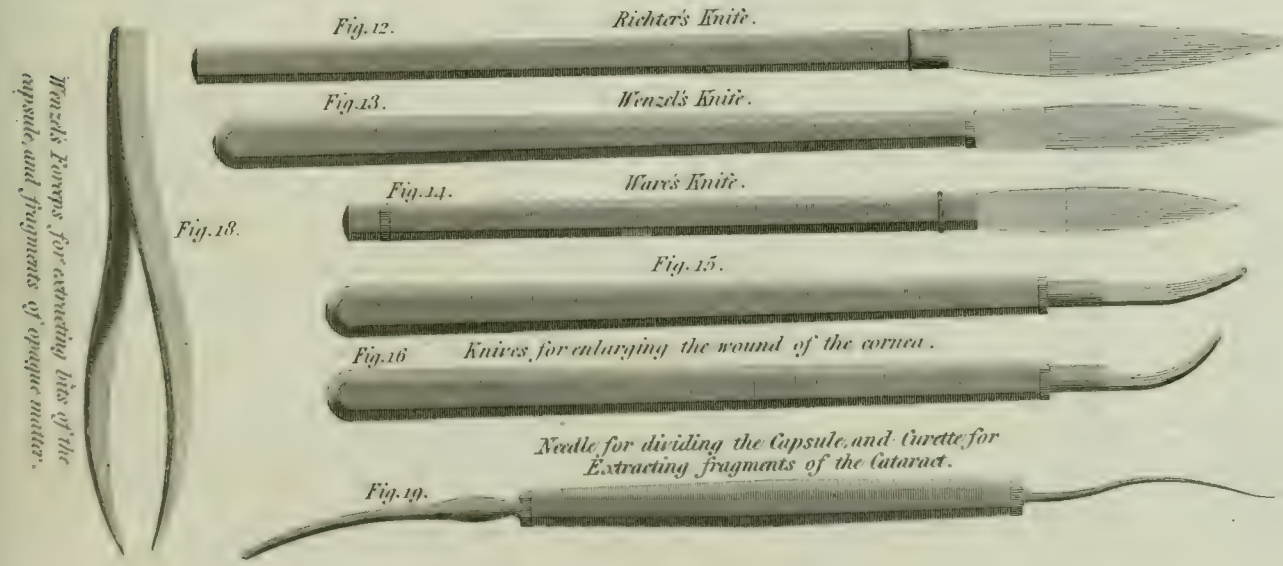
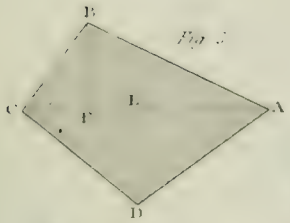


Fig. 12.
Richter's Knife.
Fig. 13.
Wenzel's Knife.
Fig. 14.
Ware's Knife.
Fig. 18.
Fig. 15.
Fig. 16
Knives for enlarging the wound of the cornea.
Needle for dividing the Capsule, and Curette for Extracting fragments of the Cataract.
Fig. 19.
Wenzel's Forceps for extracting bits of the capsule, and fragments of opaque matter.

J. Varey delin. Published as the Act directs 1812, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Engraved by W. Lowry

PROTRACTOR.

Fig. 5



For Fig. 2. see PLATE VII Fig. 3.

Fig. 4.

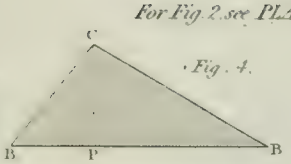


Fig. 1

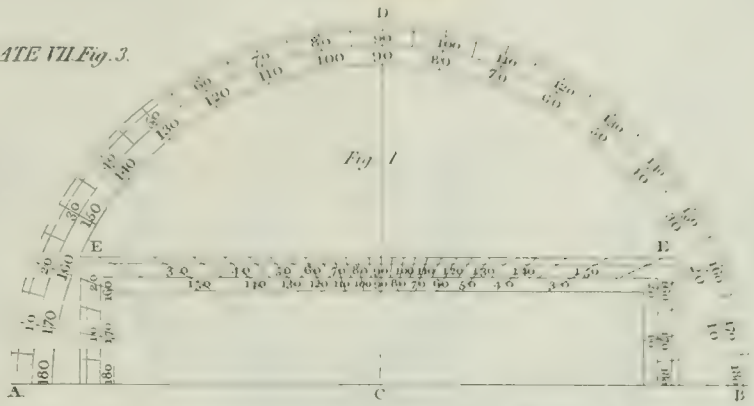


Fig. 6

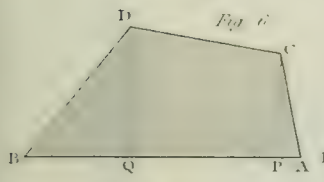


Fig. 7

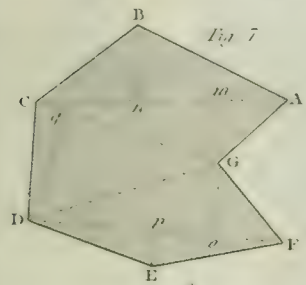


Fig. 8

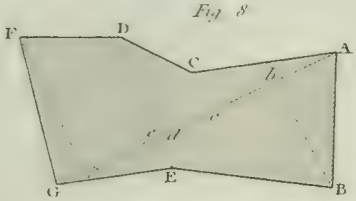
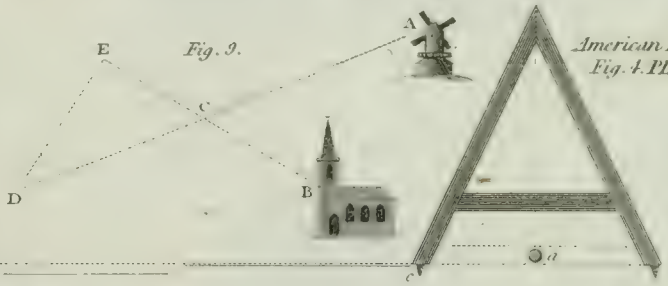


Fig. 9.



American LEVEL.
Fig. 4. PLATE VI.

LEVEL

PLATE VI.

Huygens' LEVEL. Fig. 3

Fig. 1

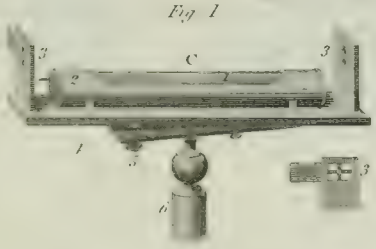
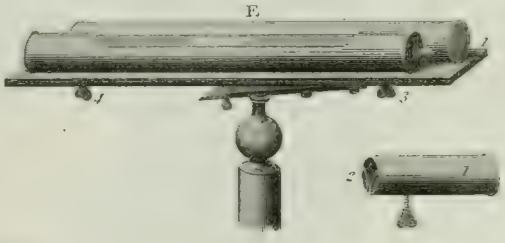


Fig. 2.



Desaguliers' LEVEL.

Fig. 7

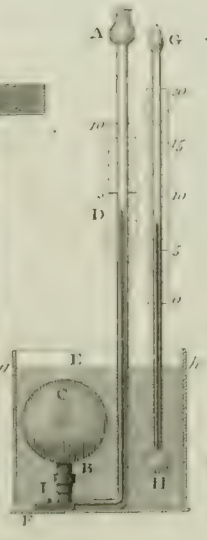


Fig. 8.

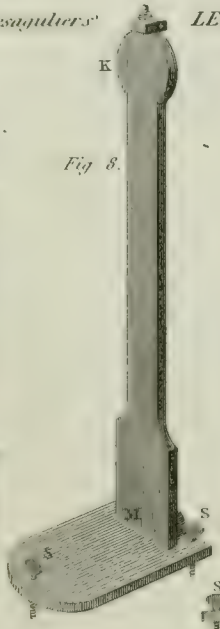


Fig. 9

Fig. 10

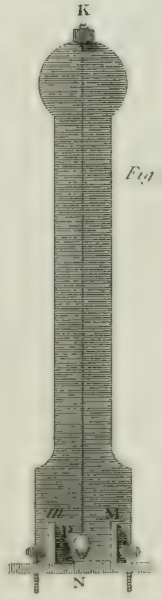
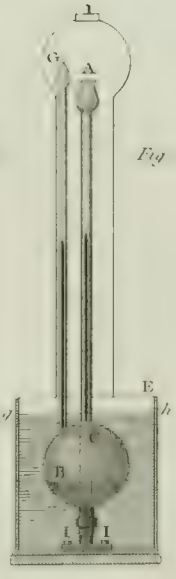


Fig. 11.



Watering LEVEL

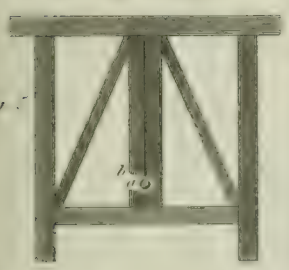


Fig. 5

Fig. 6

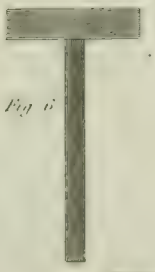
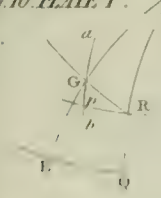


Fig. 10. PLATE I.



Convergency of MERIDIANS.

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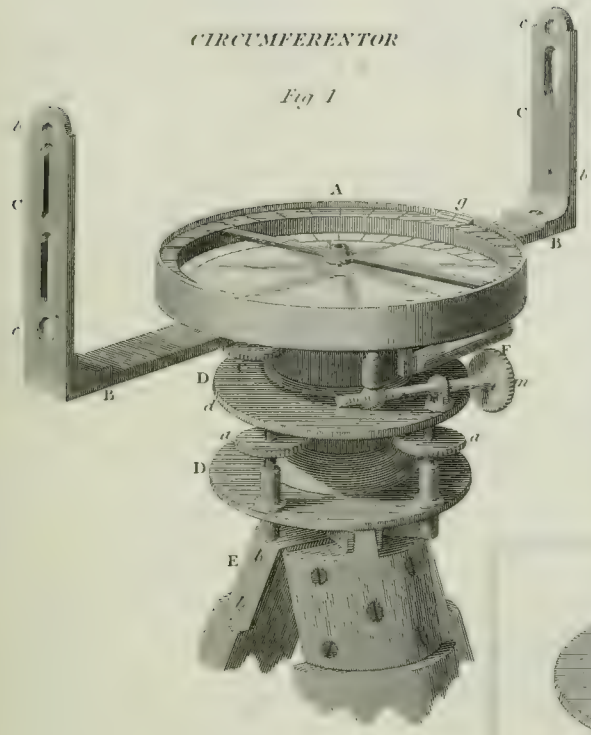
Lowry Sc

CIRCUMFERENTOR

Fig 1



CROSS

Fig 1

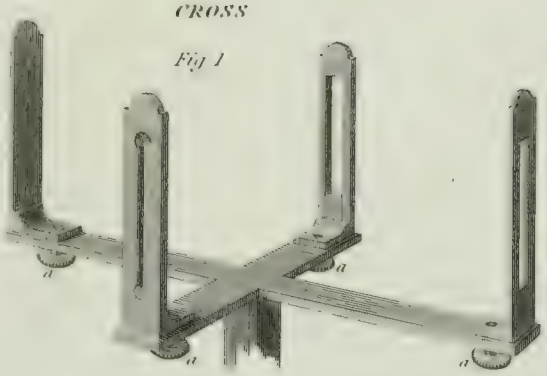
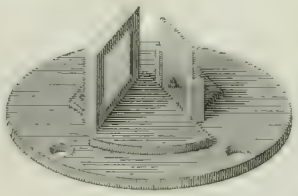


Fig 2.

Fig. 5.



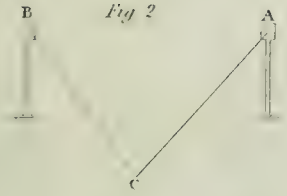
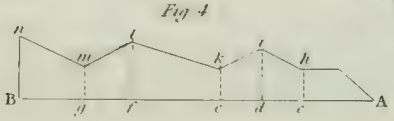


Fig 4



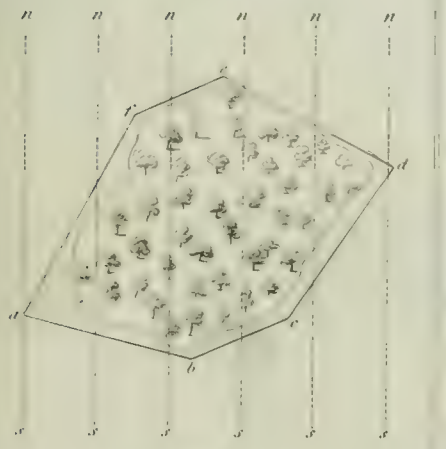


Fig. 3

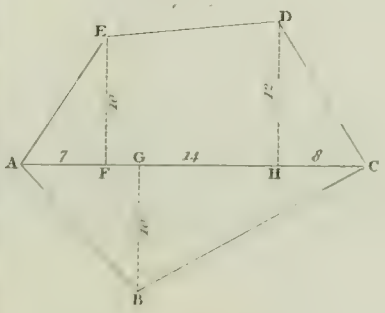
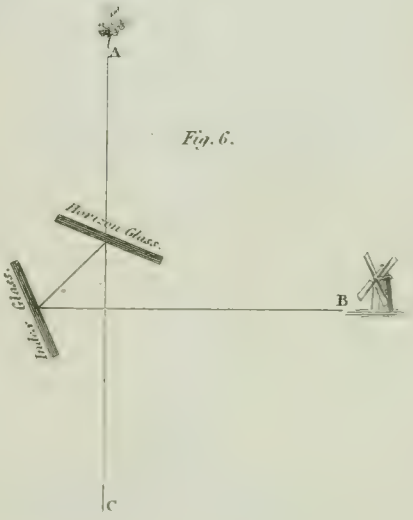


Fig. 6.



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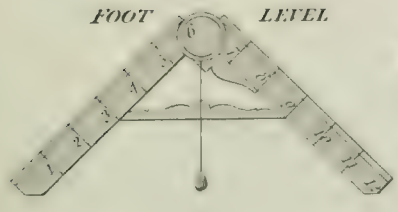
SURVEYING

Fig. 1

FOOT LEVEL



GAUGING

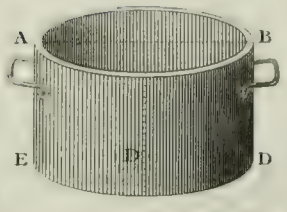
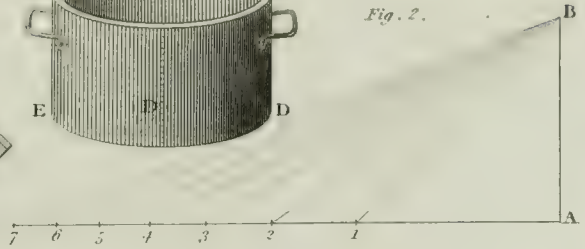


Fig. 2.



Artillery foot LEVEL

Fig. 6.

Artificers' LEVEL

Fig. 5.

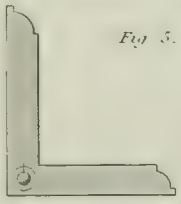
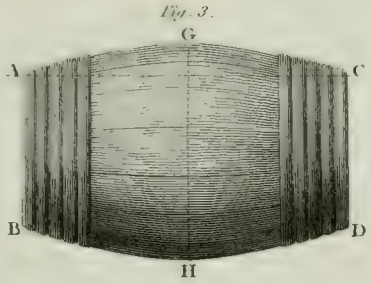
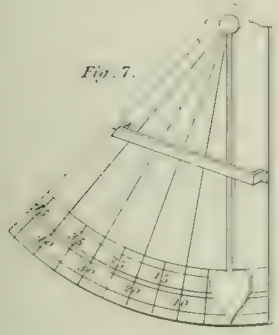


Fig. 3.



Gunners' LEVEL

Fig. 7.



Mercurial LEVEL

Fig. 8.

Fig. 9.

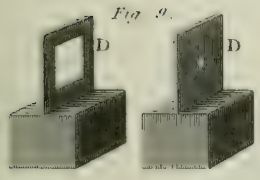
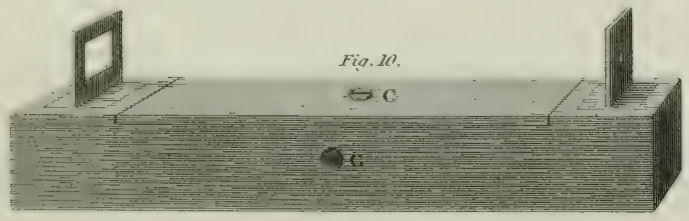


Fig. 10.



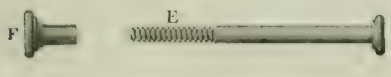


Fig. 11.

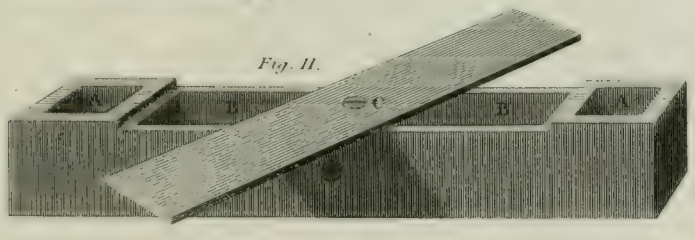
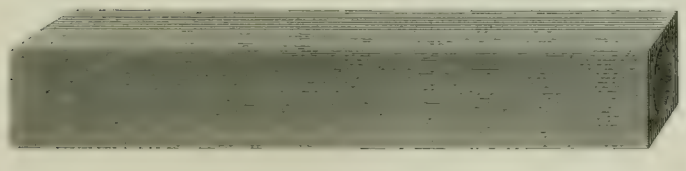
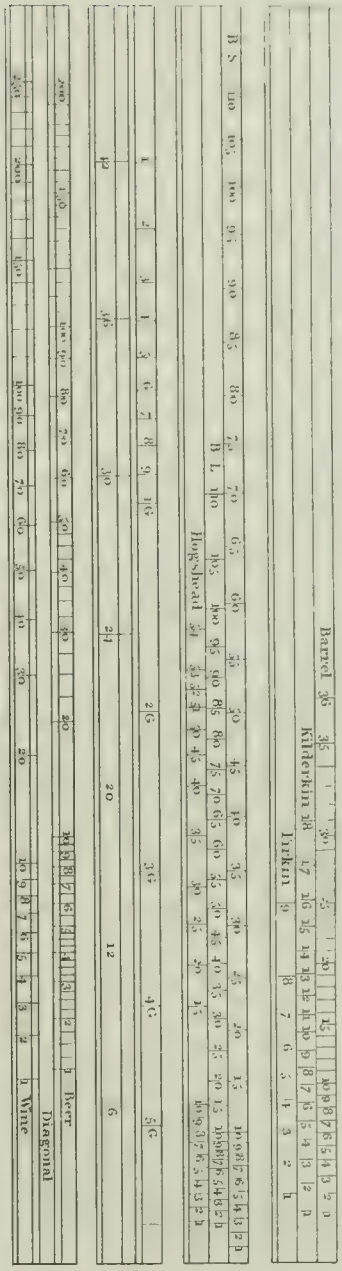


Fig. 12.



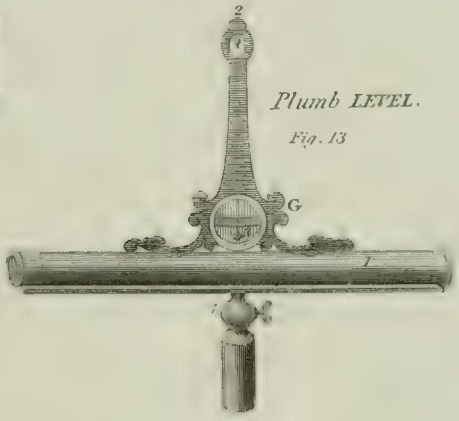
GAUGING Rod

Fig. 4



Plumb LEVEL.

Fig. 13



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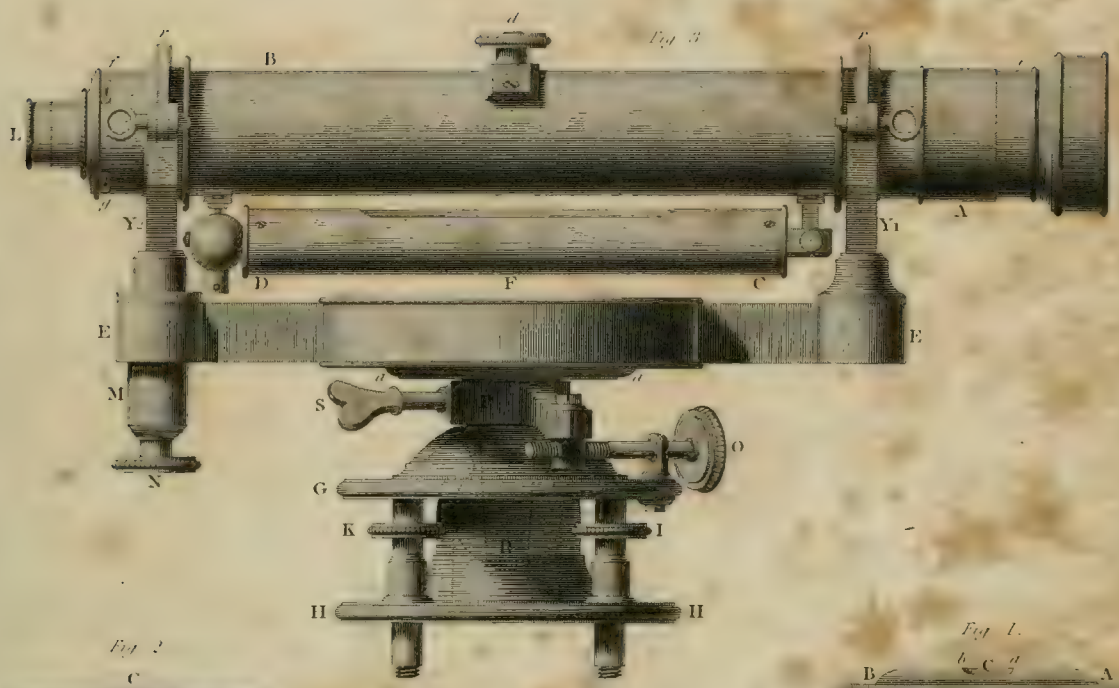
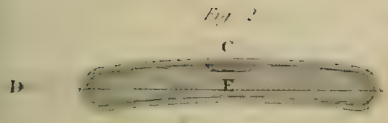
Lowry Sc.

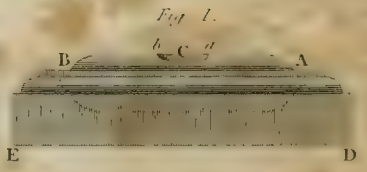
SURVEYING.

LEVELS,

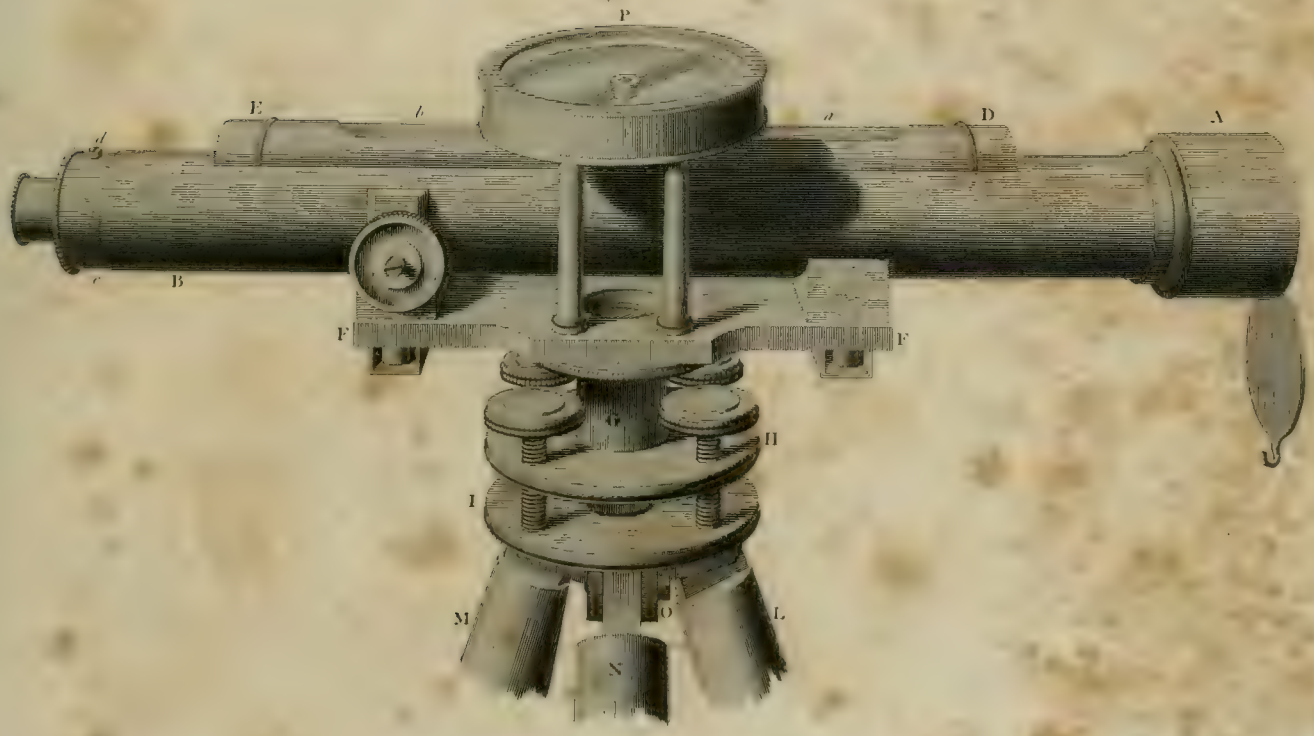
by Mr. Ramsden.







Mr. Troughton's



J. Farey Jun.r Delin.

Published as the Act directs, 1817, by Longman Hurst Rees Orme & Brown Paternoster Row

Lowry Sc.

Fig. 1

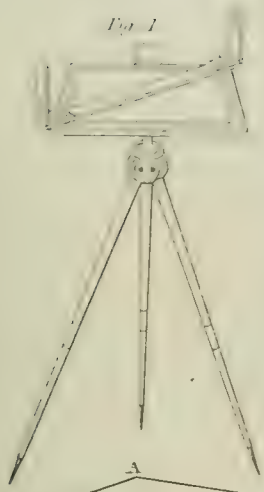


Fig. 2.

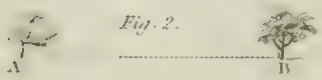
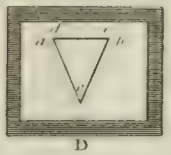
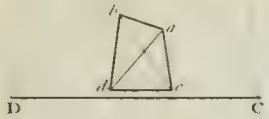


Fig. 3.

Fig. 4.





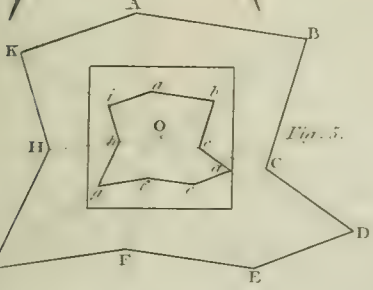
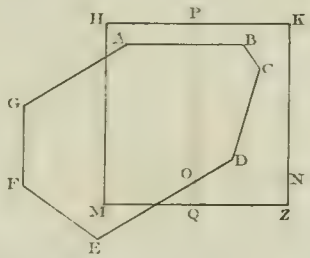


Fig. 5.

Fig. 6.



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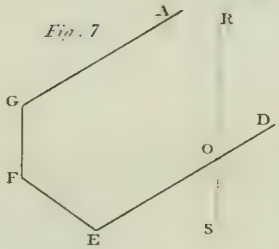

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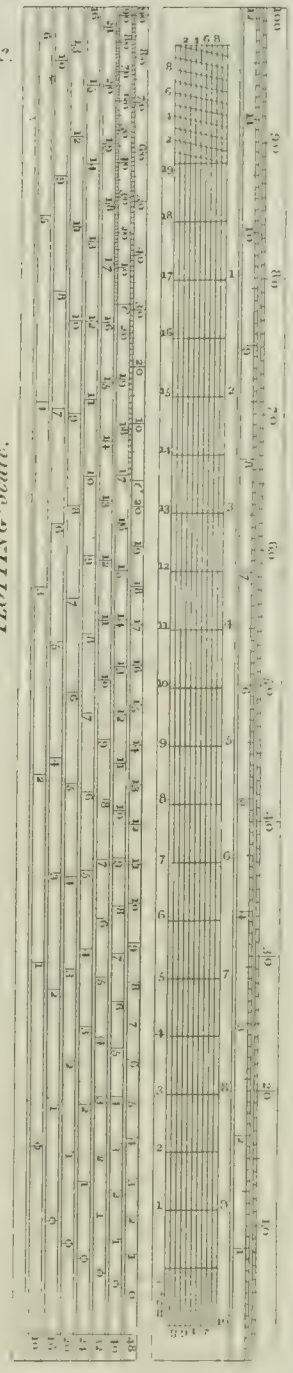
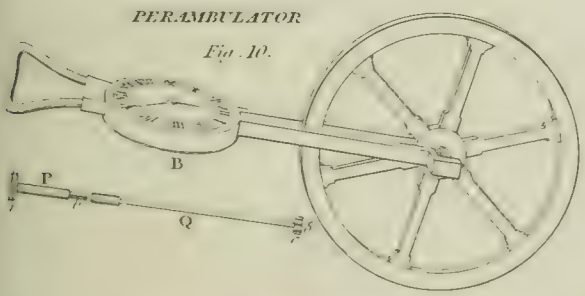


PLOTTING Scale.

PERAMBULATOR

Fig. 10.



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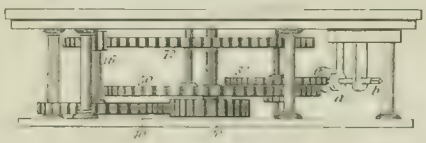
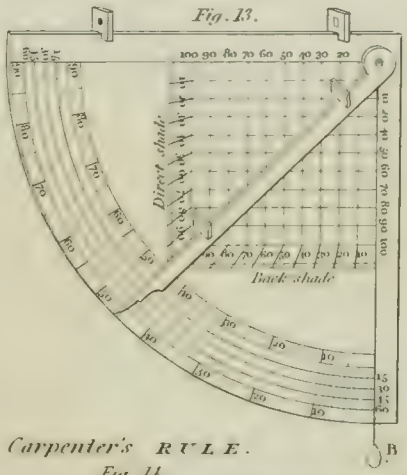
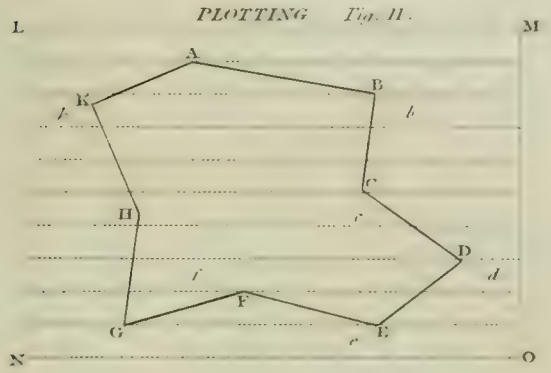


QUADRANT

Fig. 13.

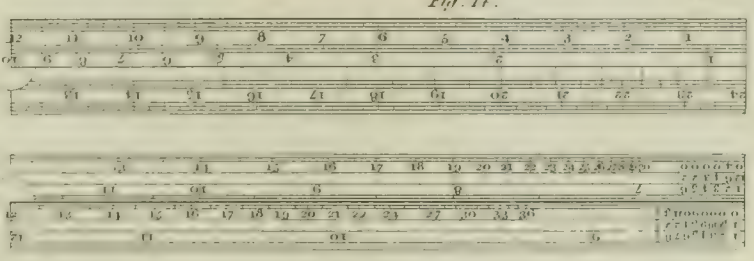


PLOTTING Fig. 11.



Carpenter's RULE.

Fig. 11.



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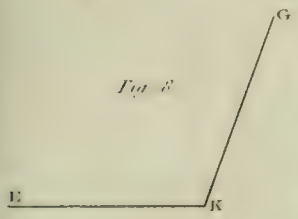

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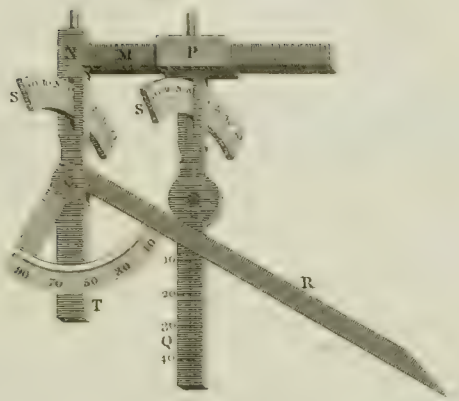
DENDROMETERS.

Fig 8



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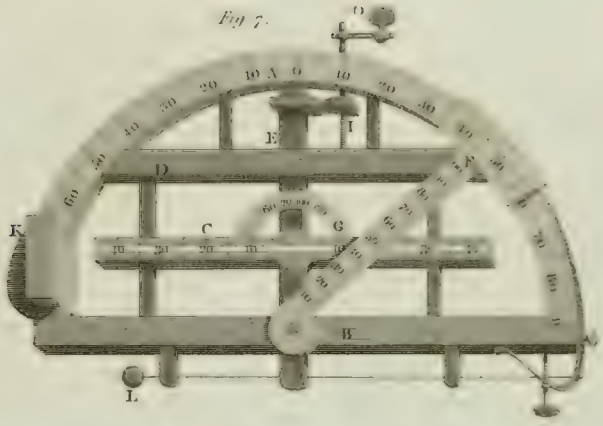

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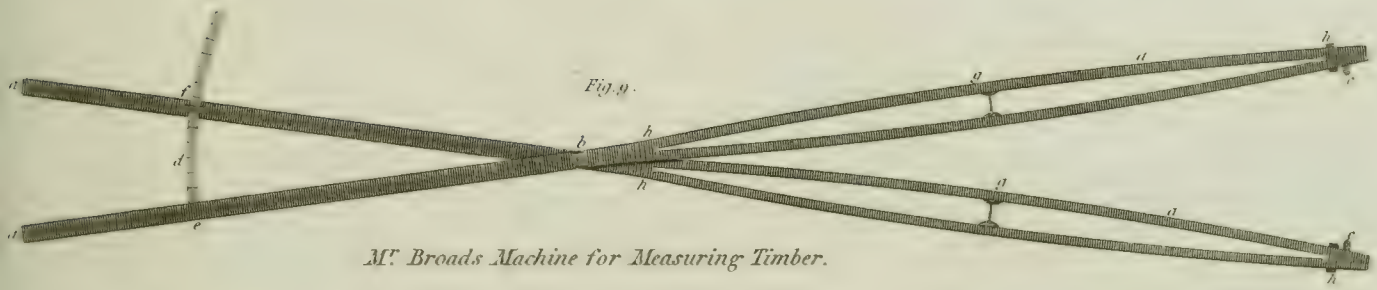
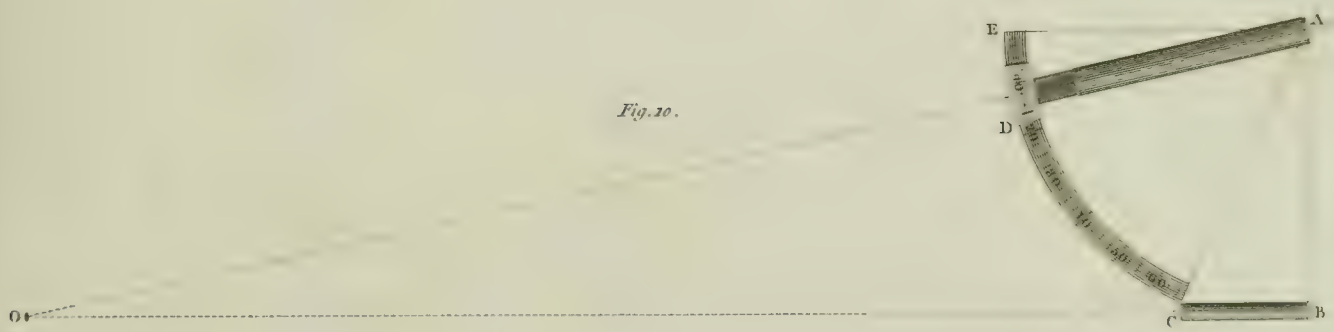


Mr. Broads Machine for Measuring Timber.

Fig.11.

Fig.10.



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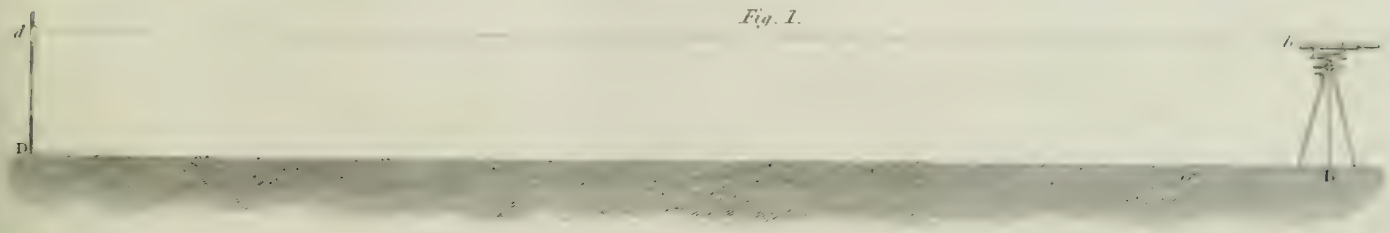
Engraved by Wilson Lowry.

SURVEYING.

LEVELLING.

Fig. 1.



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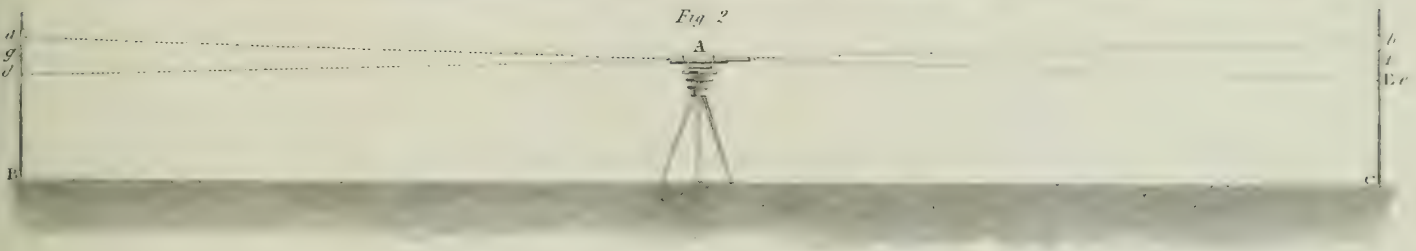

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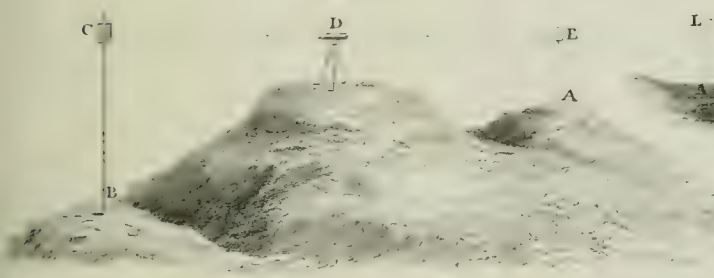
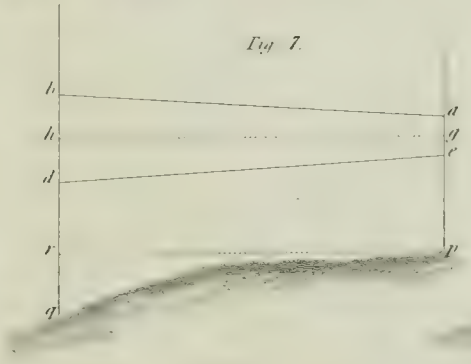


Fig. 5

Fig. 7.



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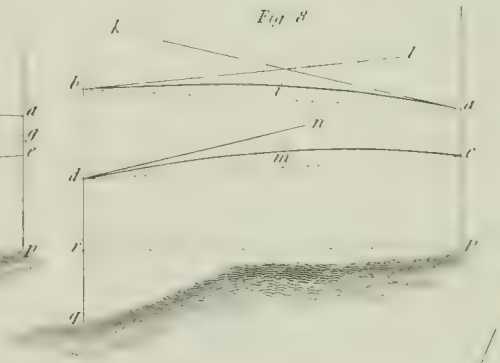

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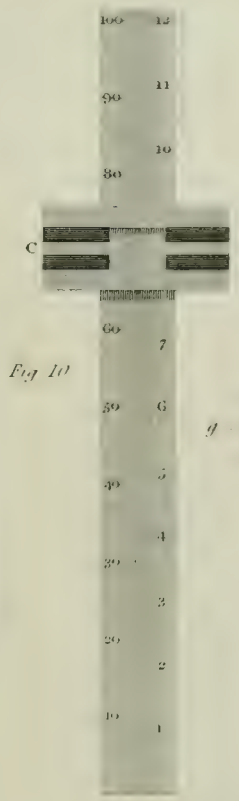
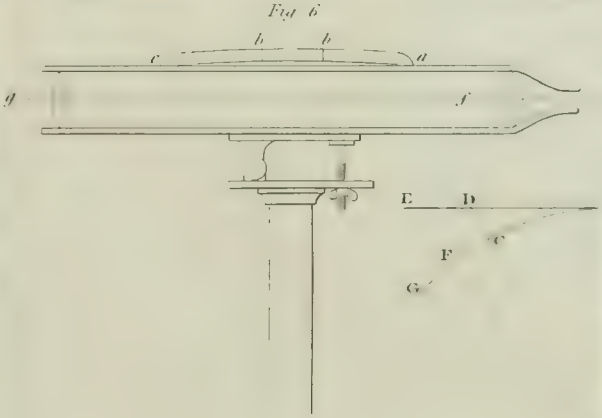


Fig. 6



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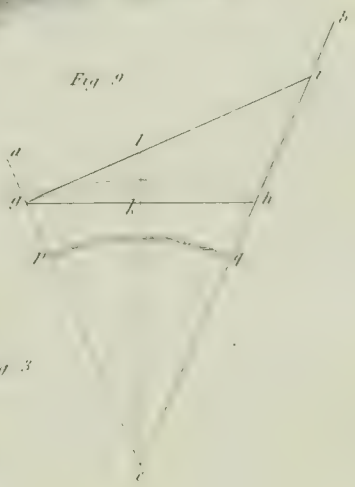

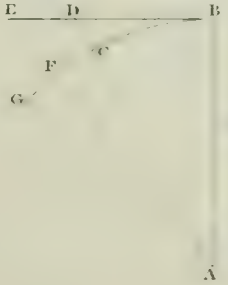

Fig. 3

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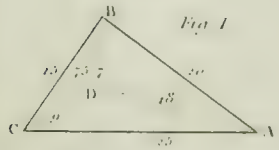
SURVEYING.

SECTOR

Fig. 1



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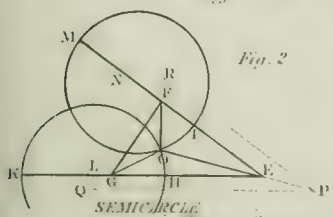
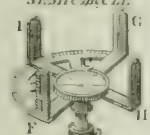


SEMICIRCLE



Coggeshall's SLIDING Rule.

Fig. 3.

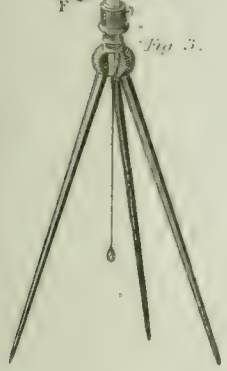
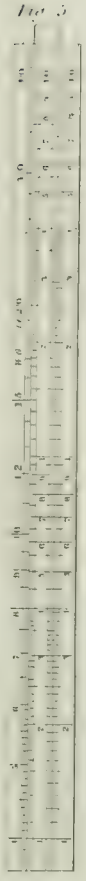
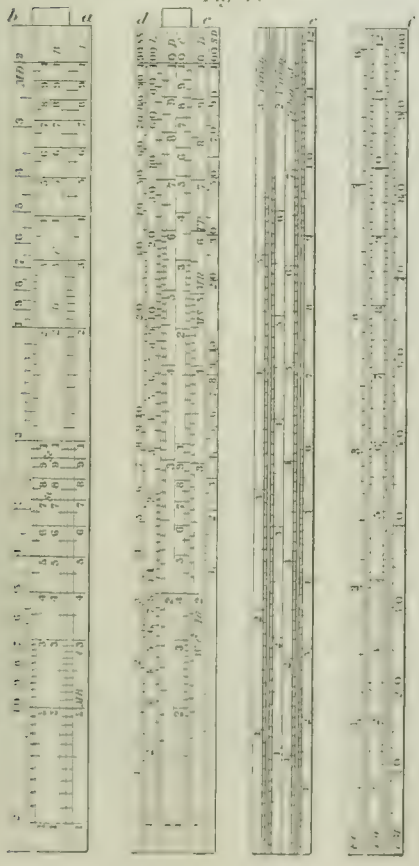


Fig. 5



Everard's SLIDING Rule

Fig. 4.



Dr Roget's SLIDING Rule

Fig. 6

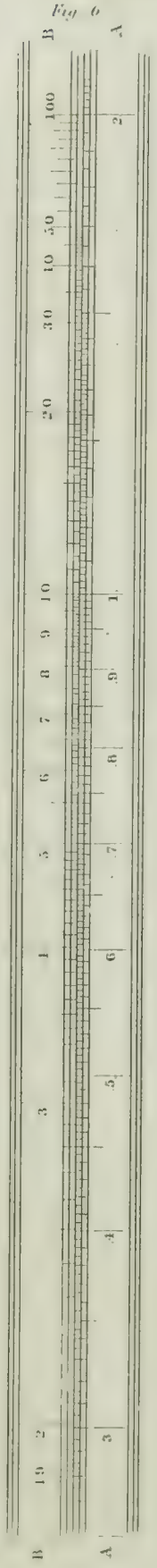


Fig. 7

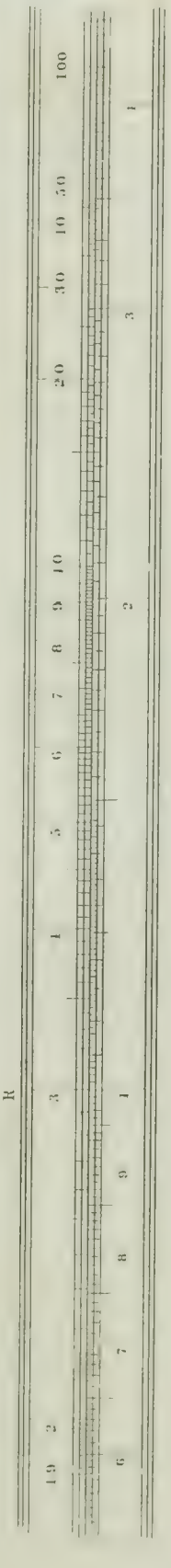


Fig. 8

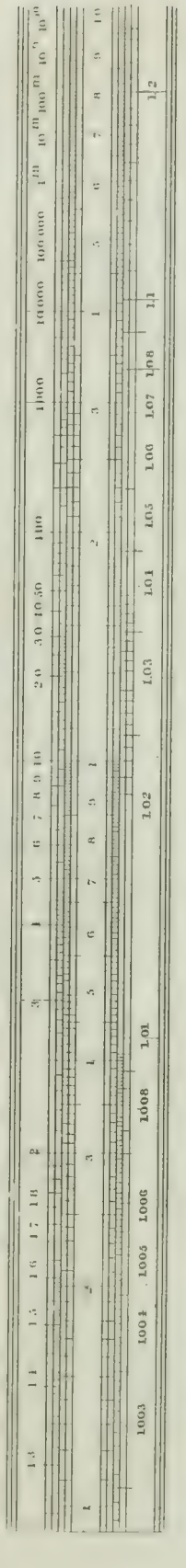
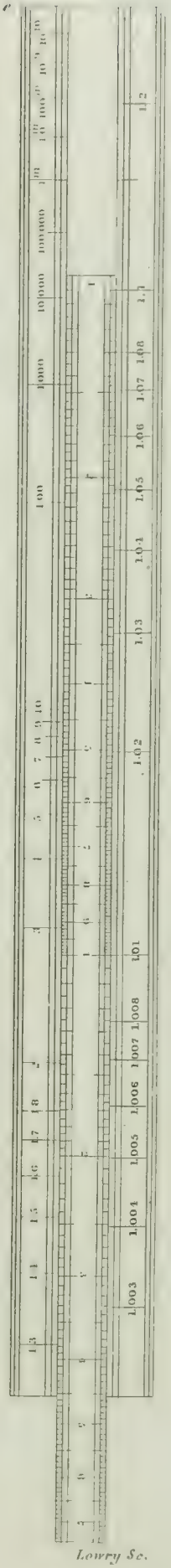


Fig. 9



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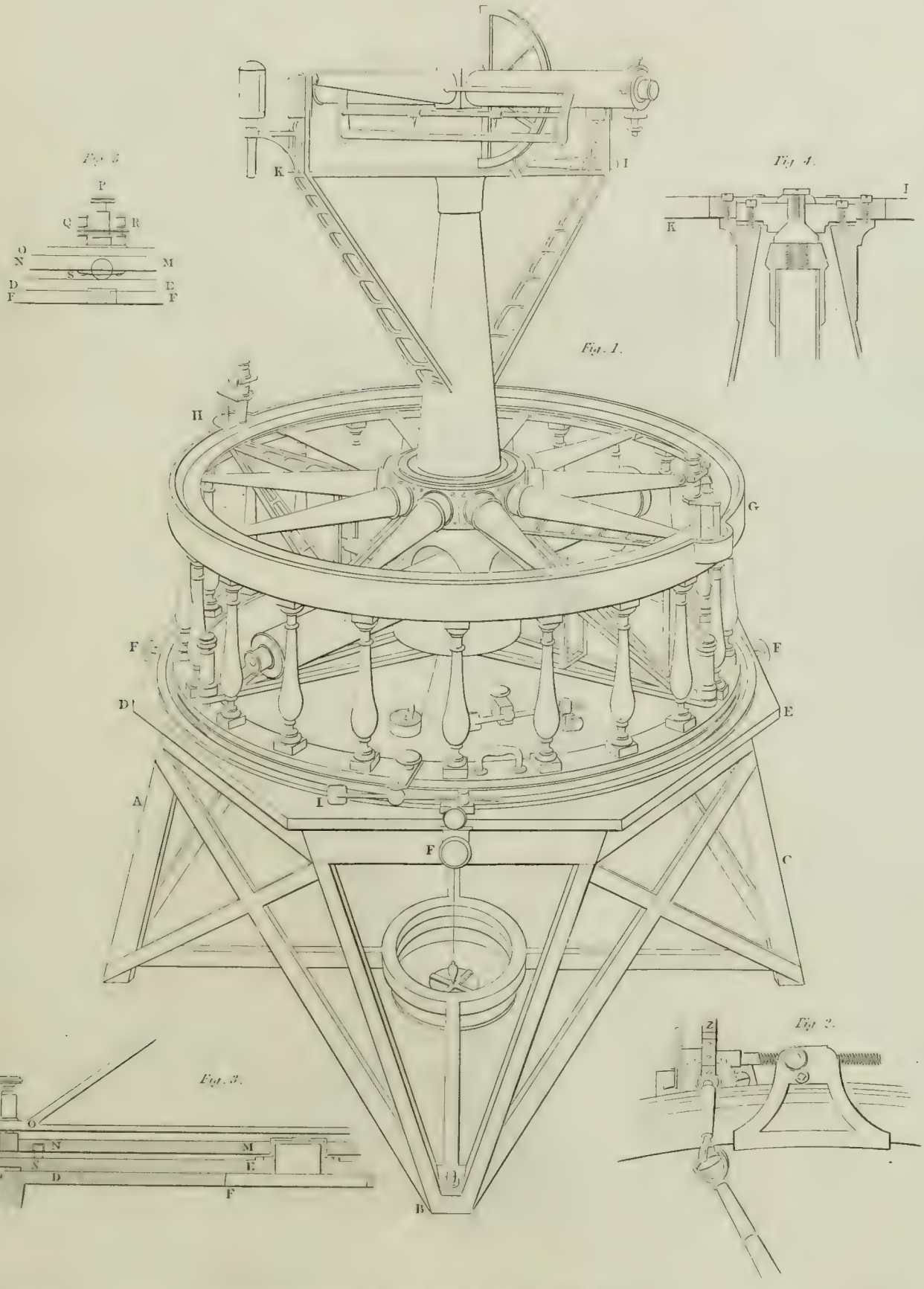
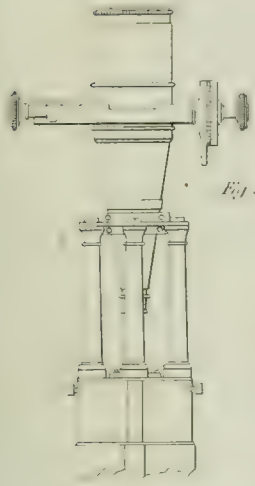
Grand THEODOLITE by Ramsden.



J. Farey, del. Published as the Act directs, 1831, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. W. Lowry, Sc.

Portable THEODOLITE by Troughton.

Fig. 1.



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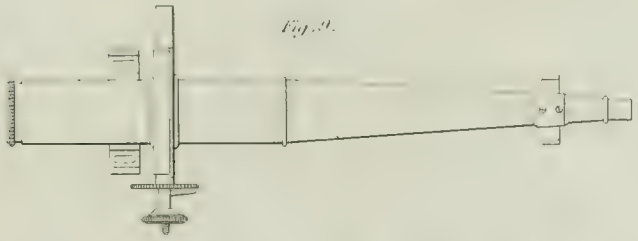

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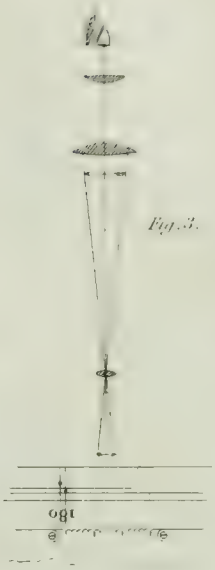

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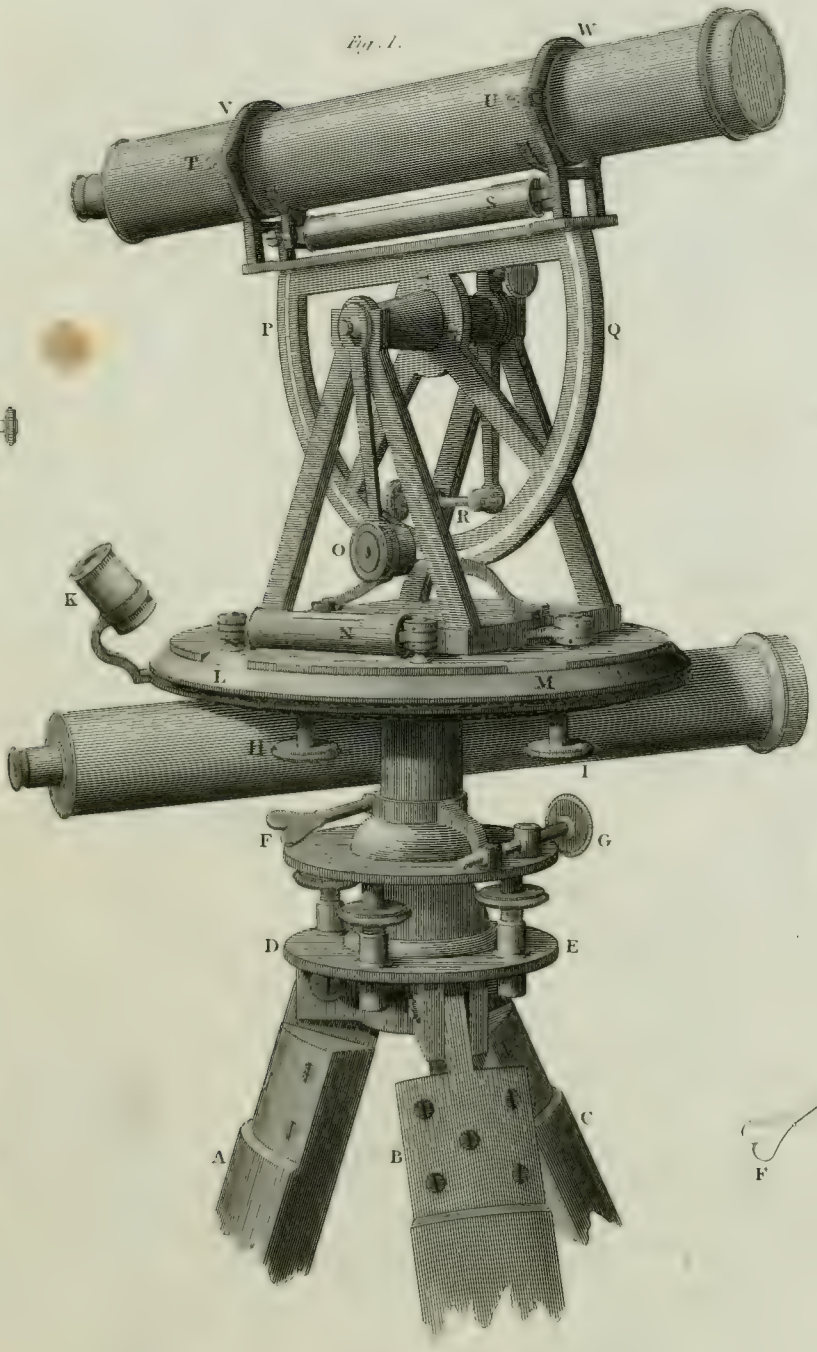

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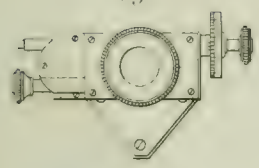

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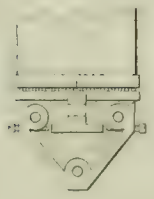

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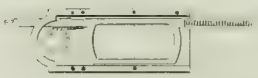

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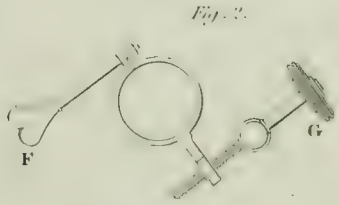

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TELEGRAPH

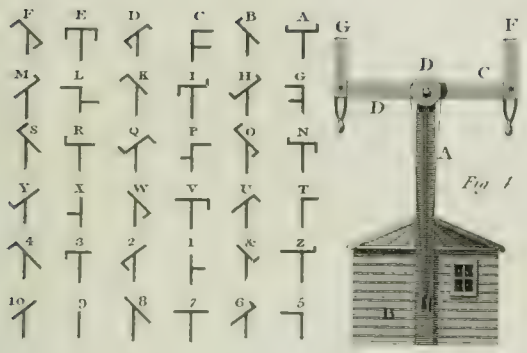
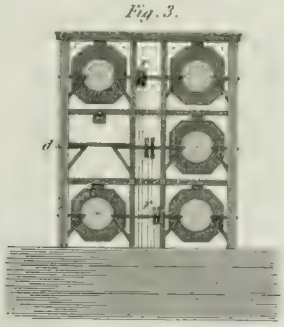


Fig. 4



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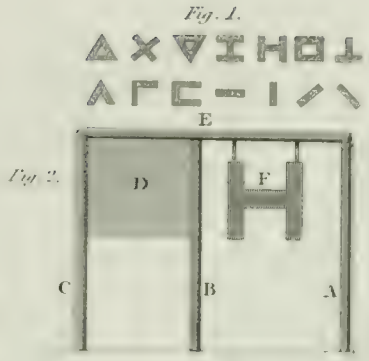

Fig. 2.

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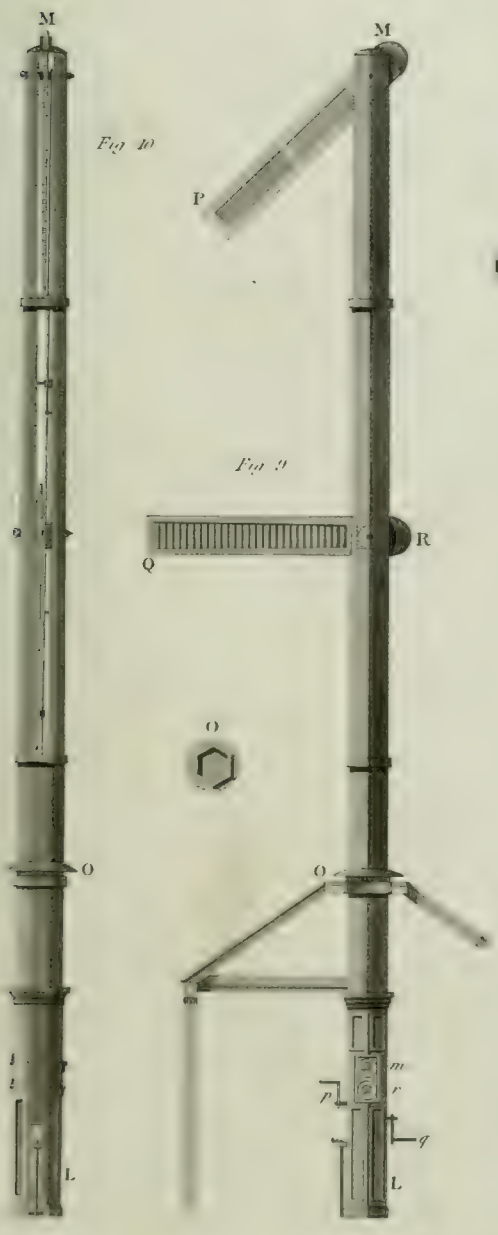


Fig. 10

Fig. 9

Fig. 8.

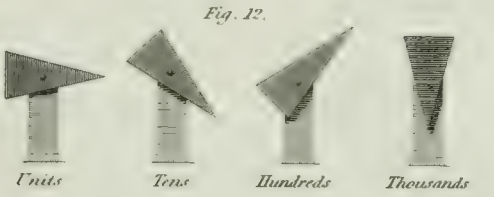
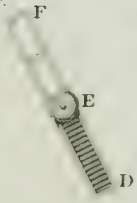


Fig. 12.

Fig. 13.

Fig. 7.



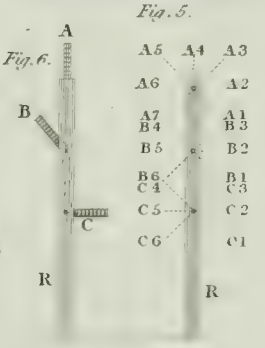


Fig. 6.

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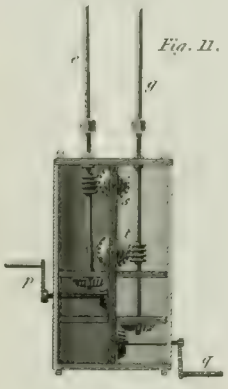

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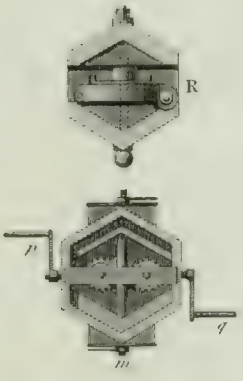

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GUNTERS Scale.

TRIGONOMETRY.

PLATE I.

Fig 1

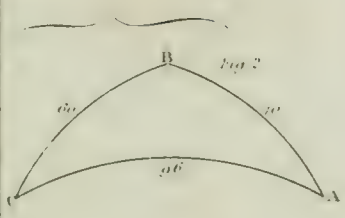
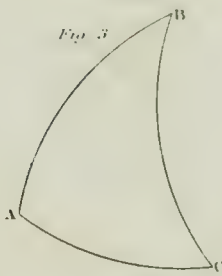
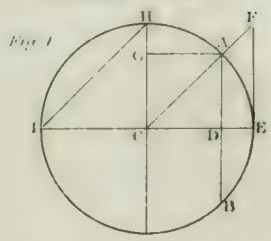


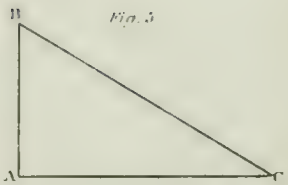
Fig 2



PART
Fig 3



SECANT & SINE
Fig 4



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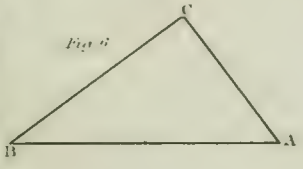

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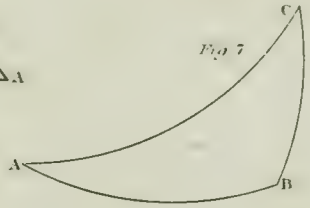

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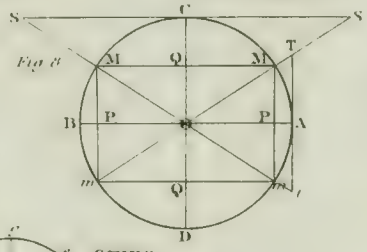
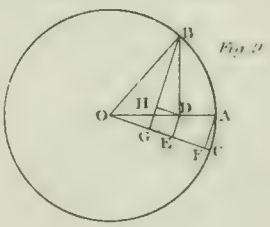


ARITHMETIC
Fig 8



OF SINES
Fig 9

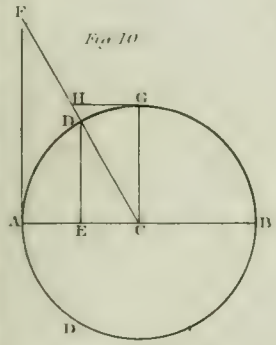


Fig 10

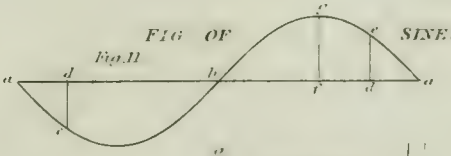
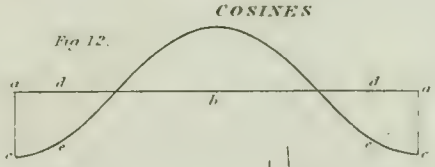
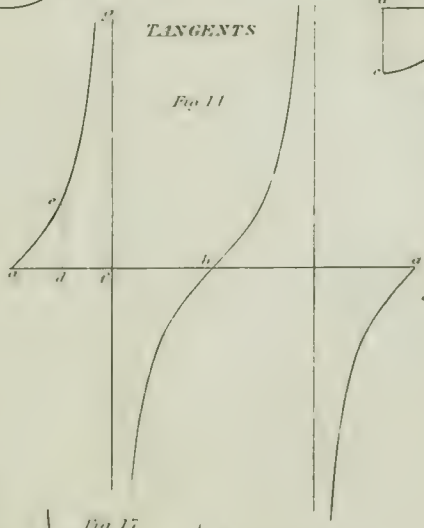
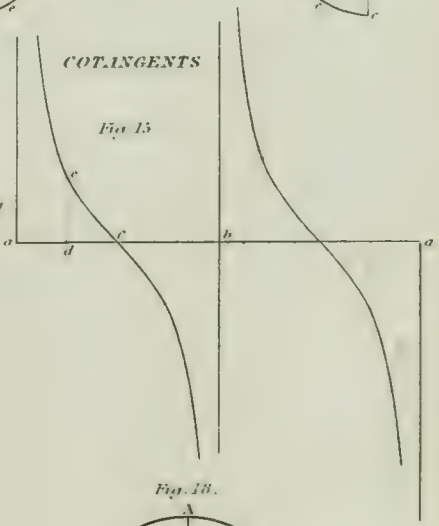


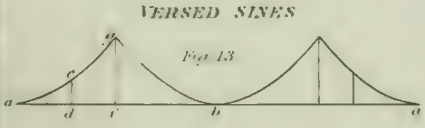
FIG OF SINES
Fig 11

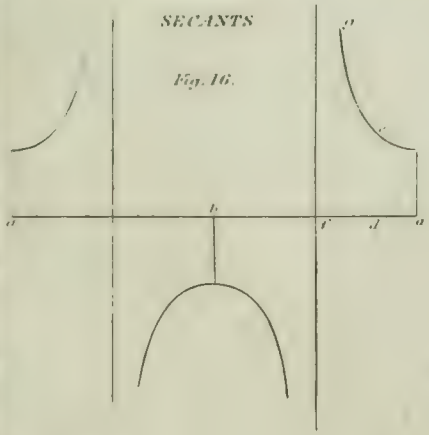


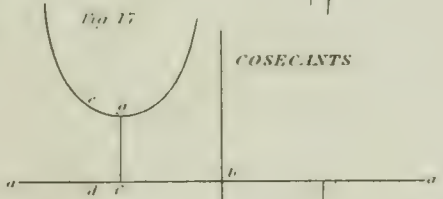
COSINES
Fig 12.

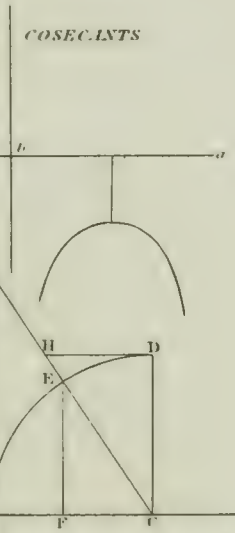


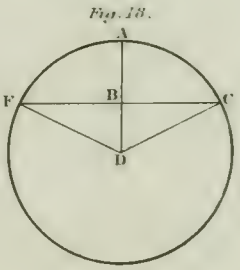


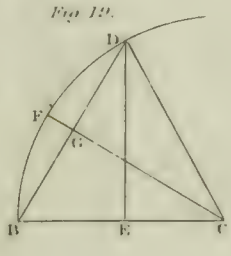


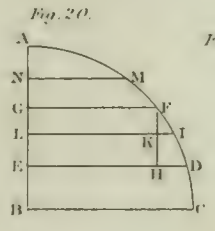


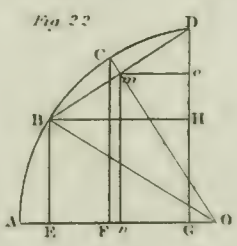












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Lowry Sculp.

SPHERICAL Angle

Fig. 1

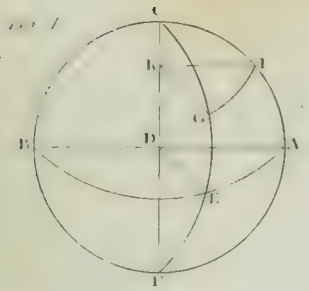
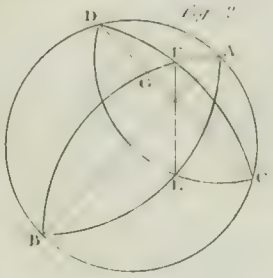


Fig. 2



SPHERICAL Triangle

Fig. 3.

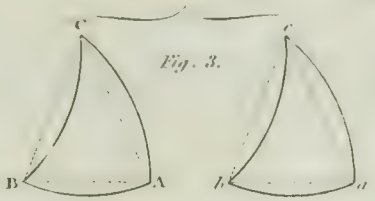


Fig. 4.

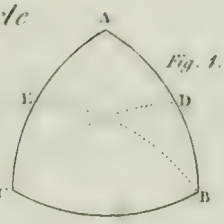
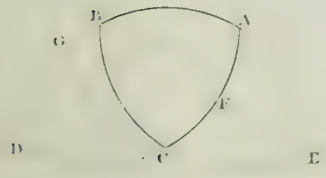


Fig. 5



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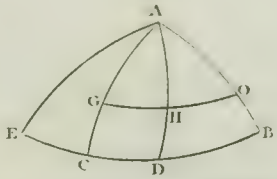

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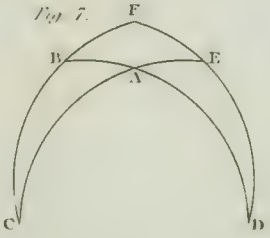
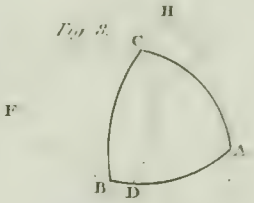


Fig. 8.



SPHERICS

Fig. 9.

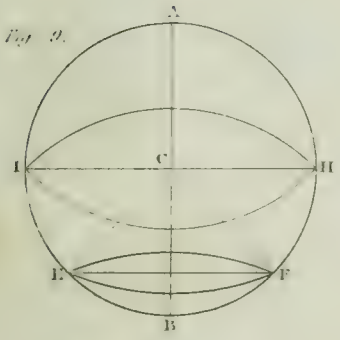
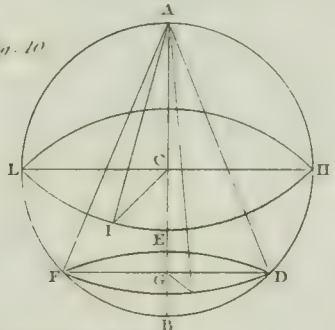


Fig. 10



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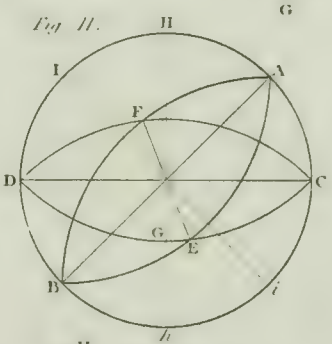


TANGENT TRIGONOMETRY

Fig. 12.

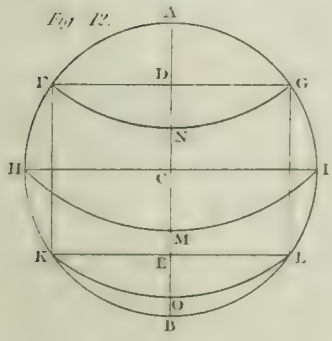
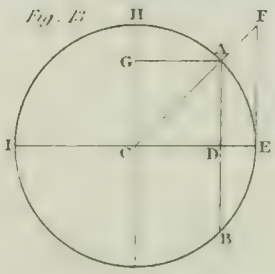


Fig. 13



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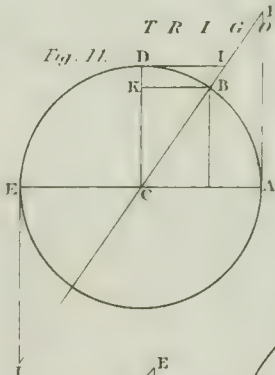

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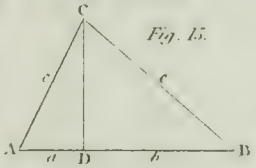

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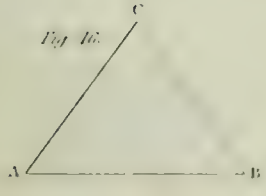

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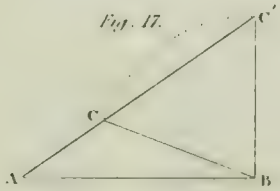

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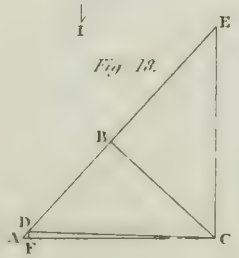

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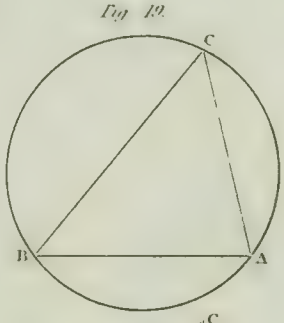

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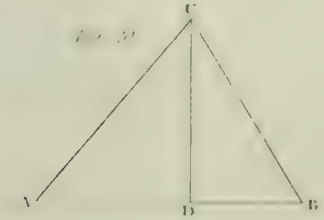

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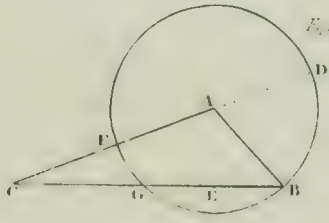

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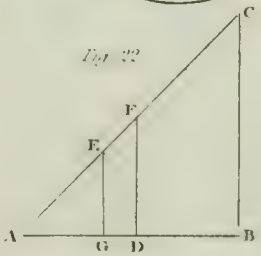

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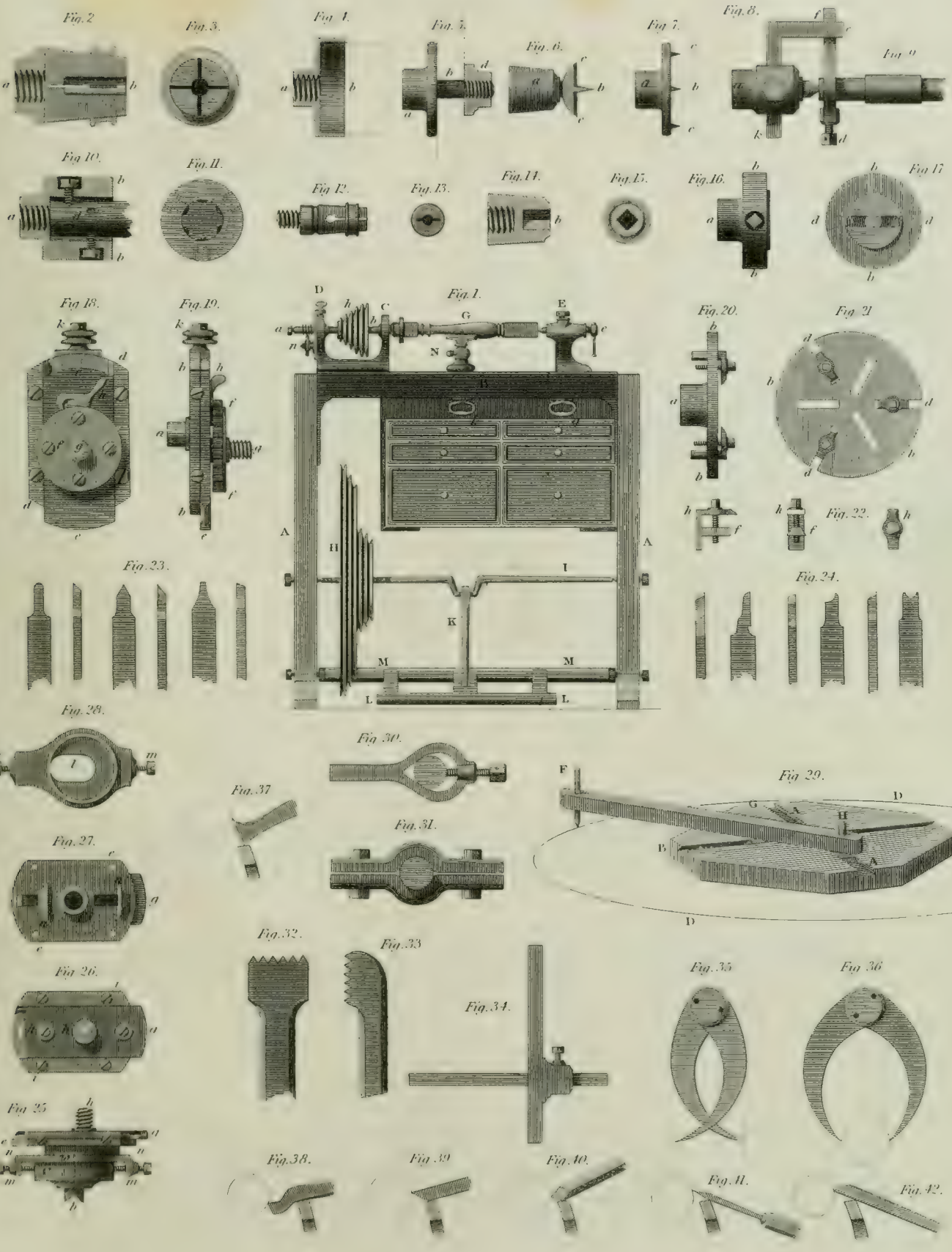
Lowry Sc.

TURNING.



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VOLTAISM.

Fig. 1

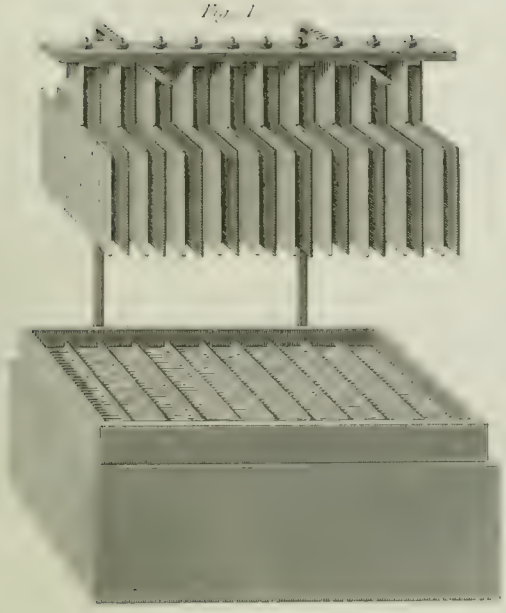
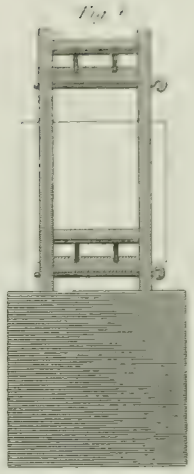


Fig. 4

Fig. 2

Fig. 6



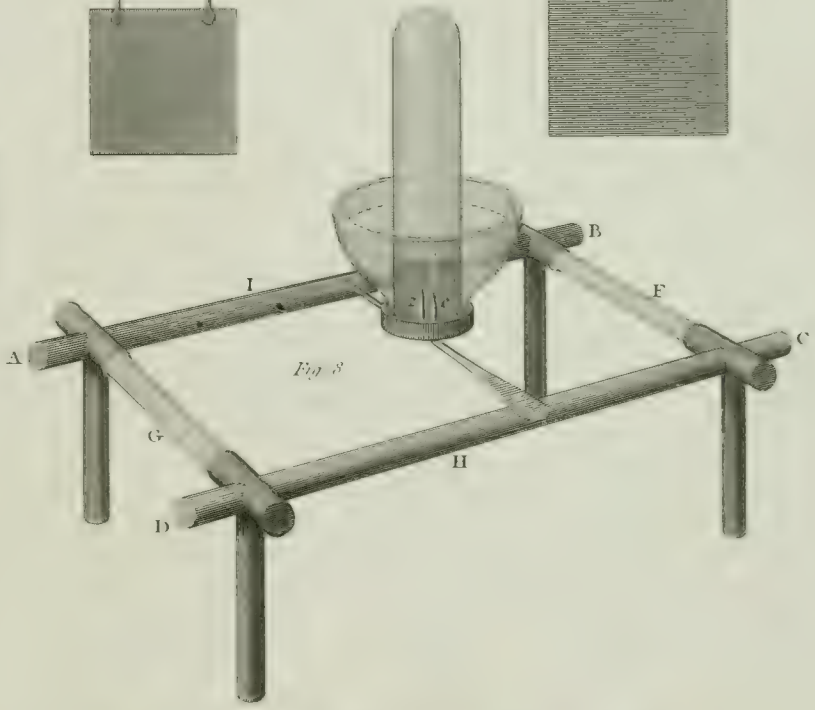


Fig. 8

Fig. 7

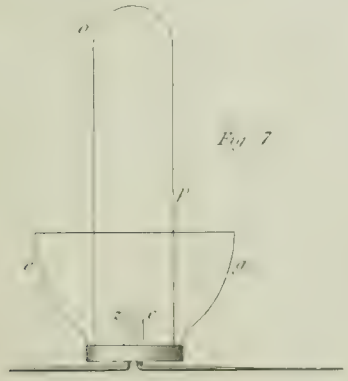


Fig. 3

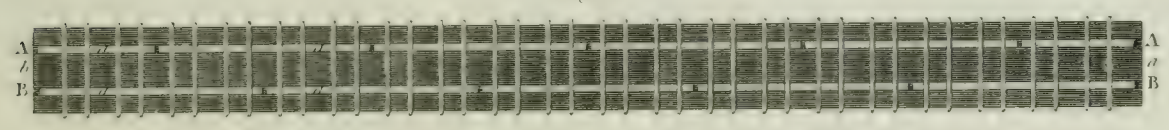
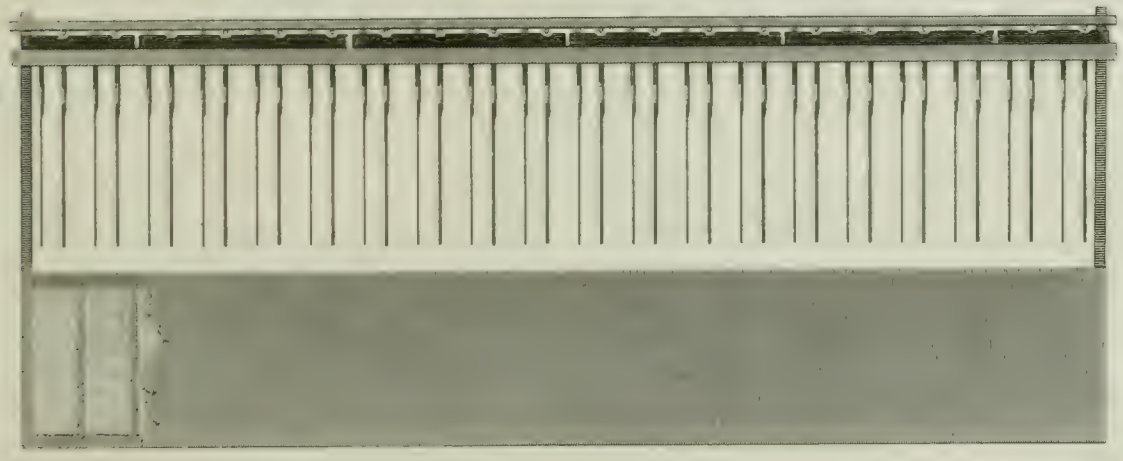


Fig. 5



Sulvester del. Published as the Act directs 1819 by Longman Hurst Rees Orme & Brown, Paternoster Row. Lowry sc

WATER WHEELS.

OVER SHOT and UNDER SHOT.

Fig. 1.

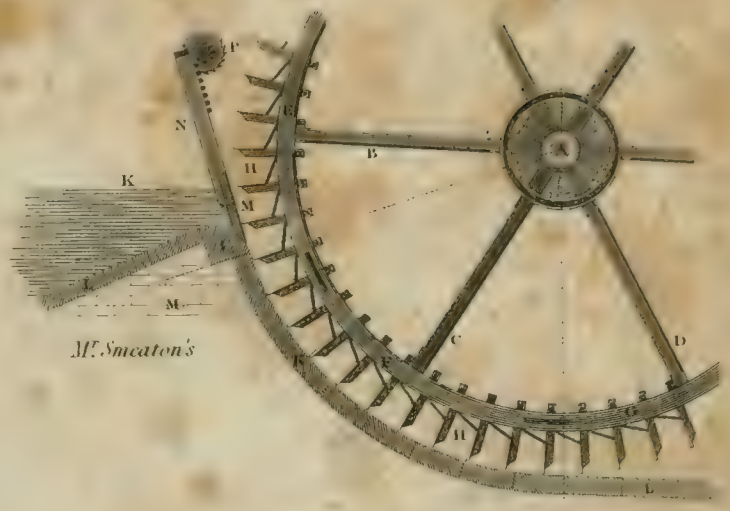


Fig. 2.

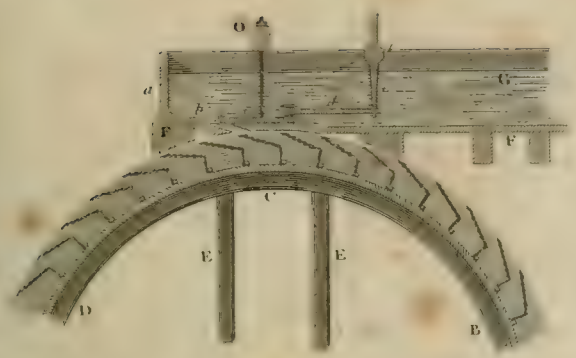


Fig. 3.

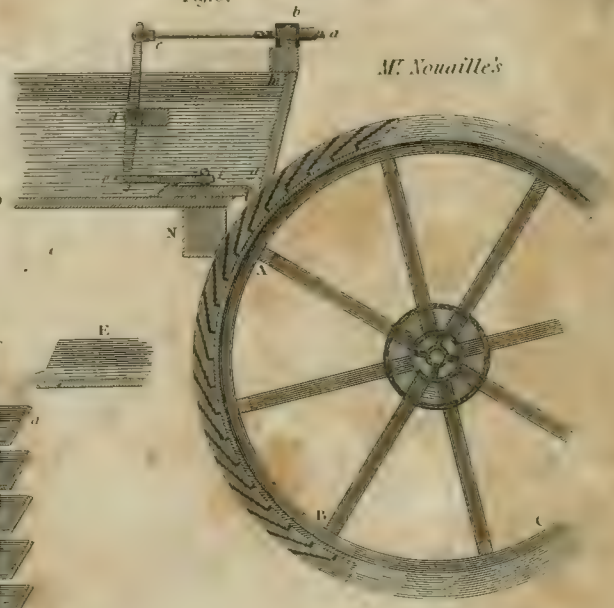


Fig. 4.

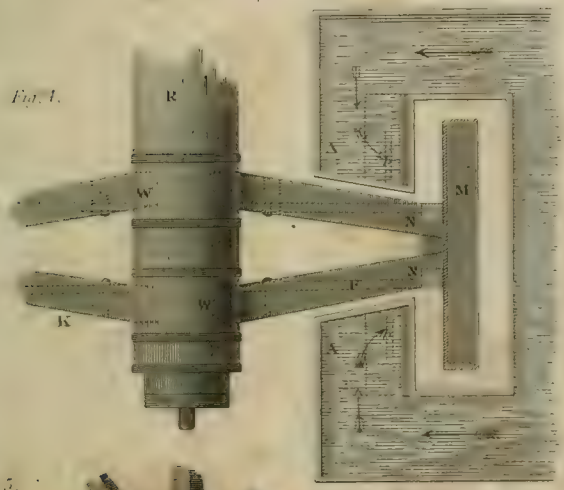
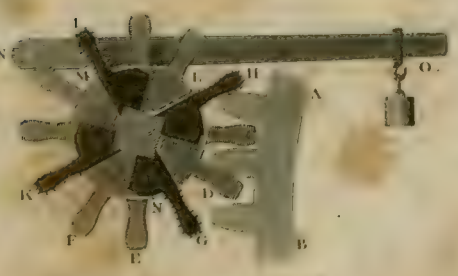


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8



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Breast WHEEL with two Shuttles.

Fig 3.

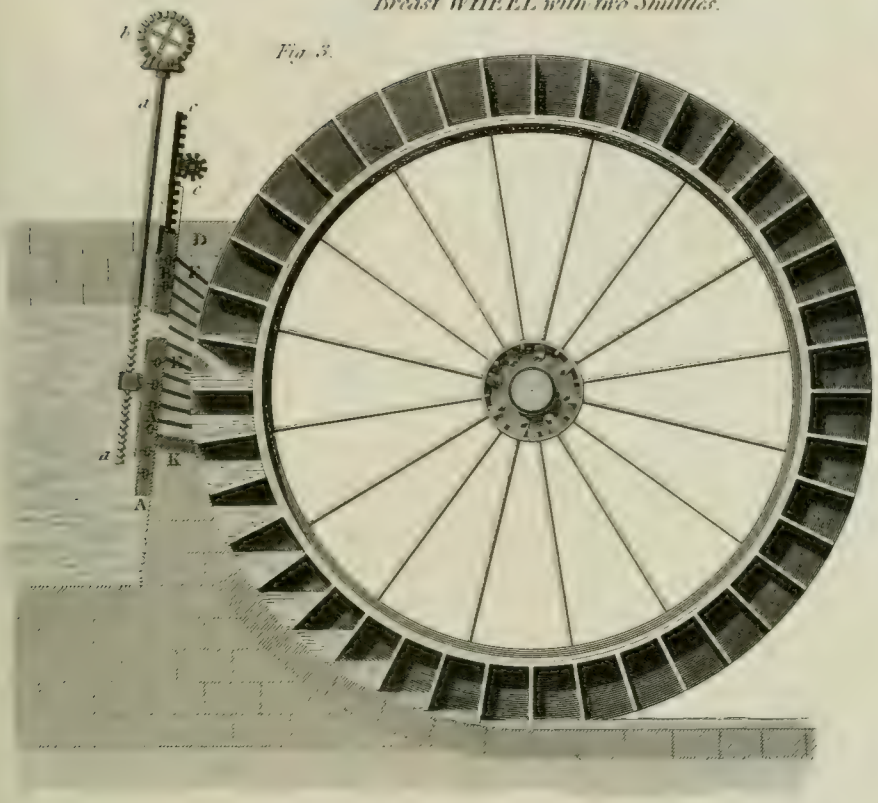
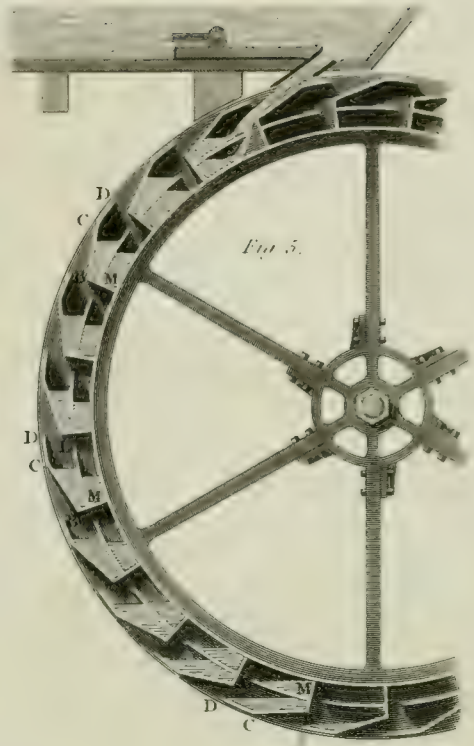
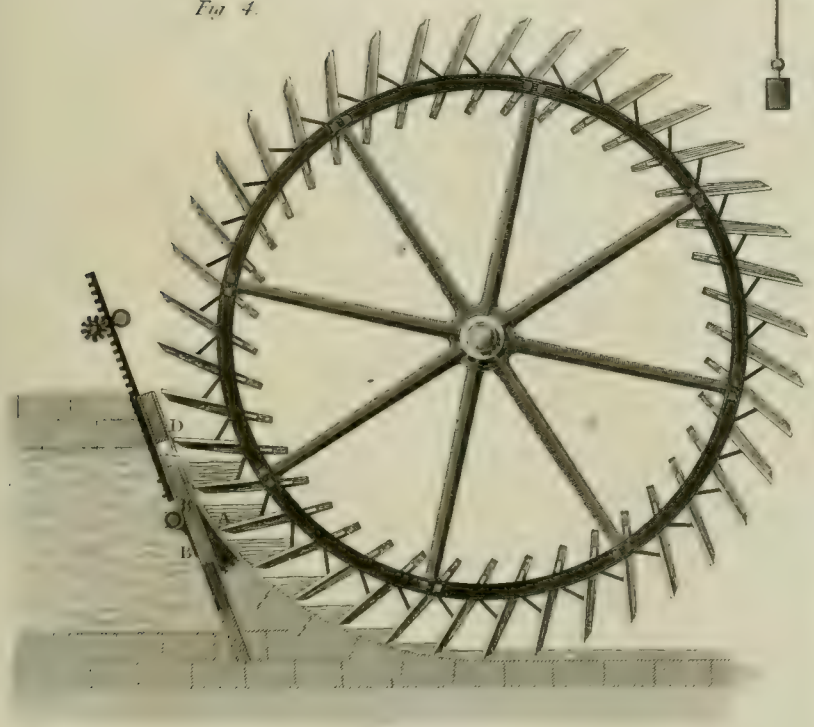


Fig 5.



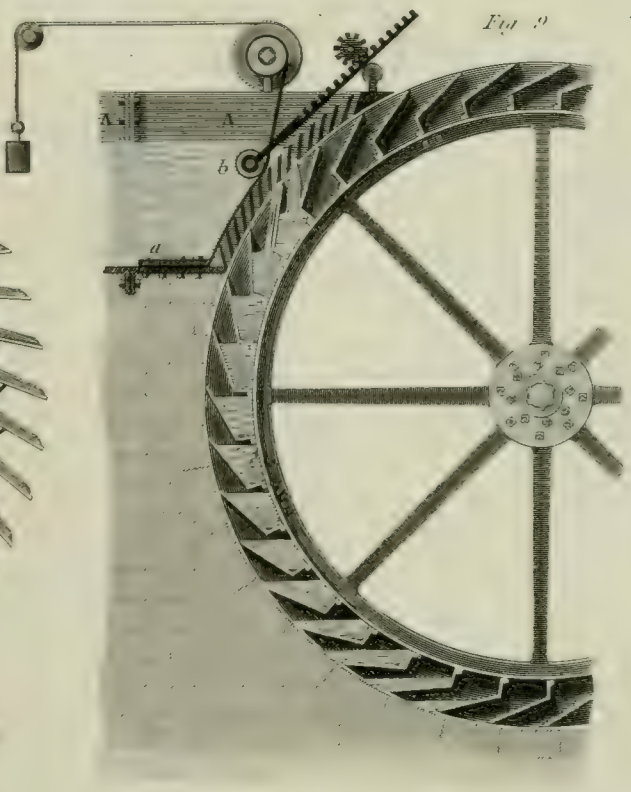
Breast WHEEL in which the water flows over the Shuttle.

Fig 4.



Overshot WHEEL.

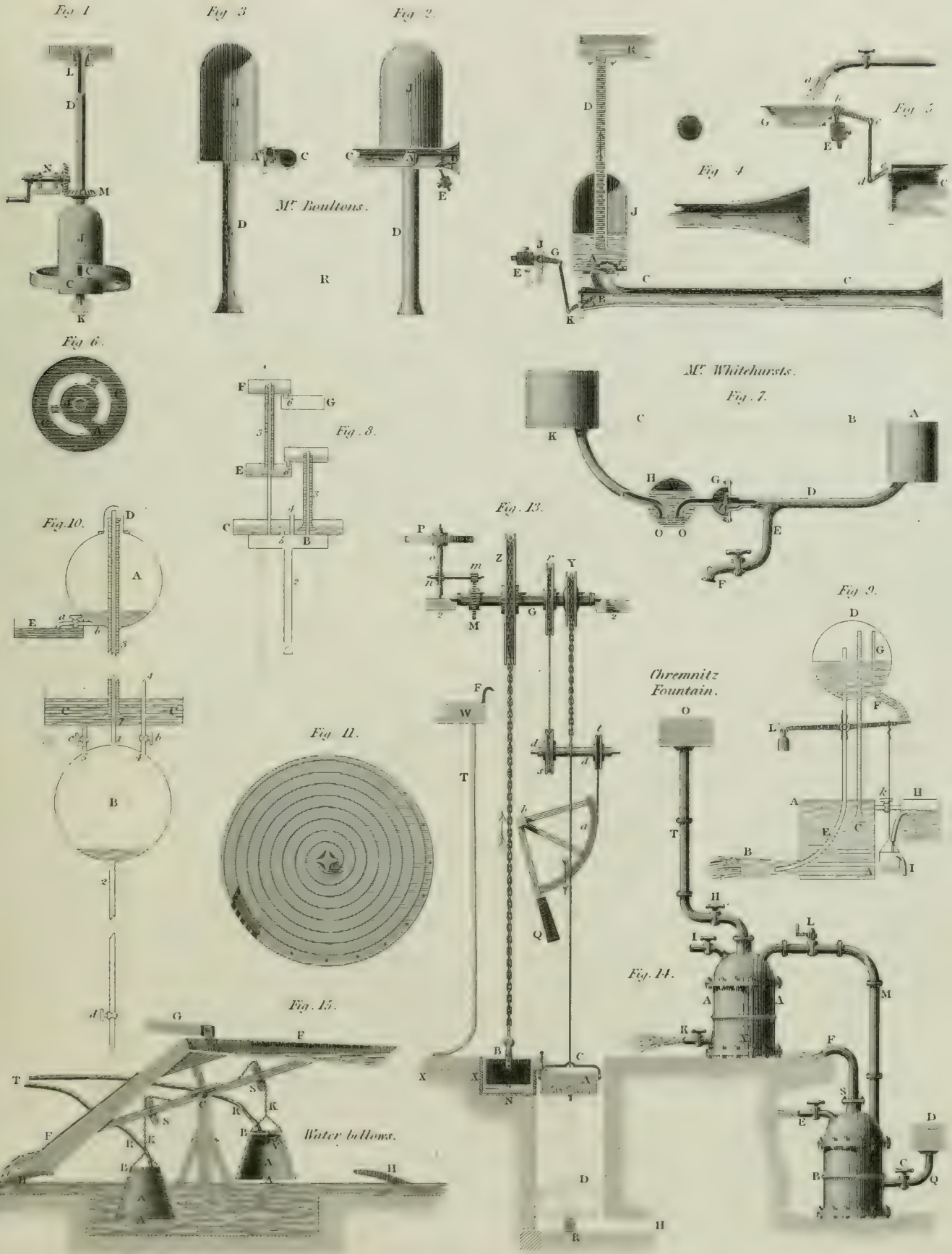
Fig 6.



J Farey, delin. Published as the Act directs, 1819 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry, Sc

WATER WORKS.

Machines for raising Water.



Farey Junr. Published as the Act directs, 1816, by Longman, Hurst, Rees, Orme and Brown, Paternoster Row. Lowry Sc.

WATER WORKS.

MACHINE for raising WATER at London Bridge.

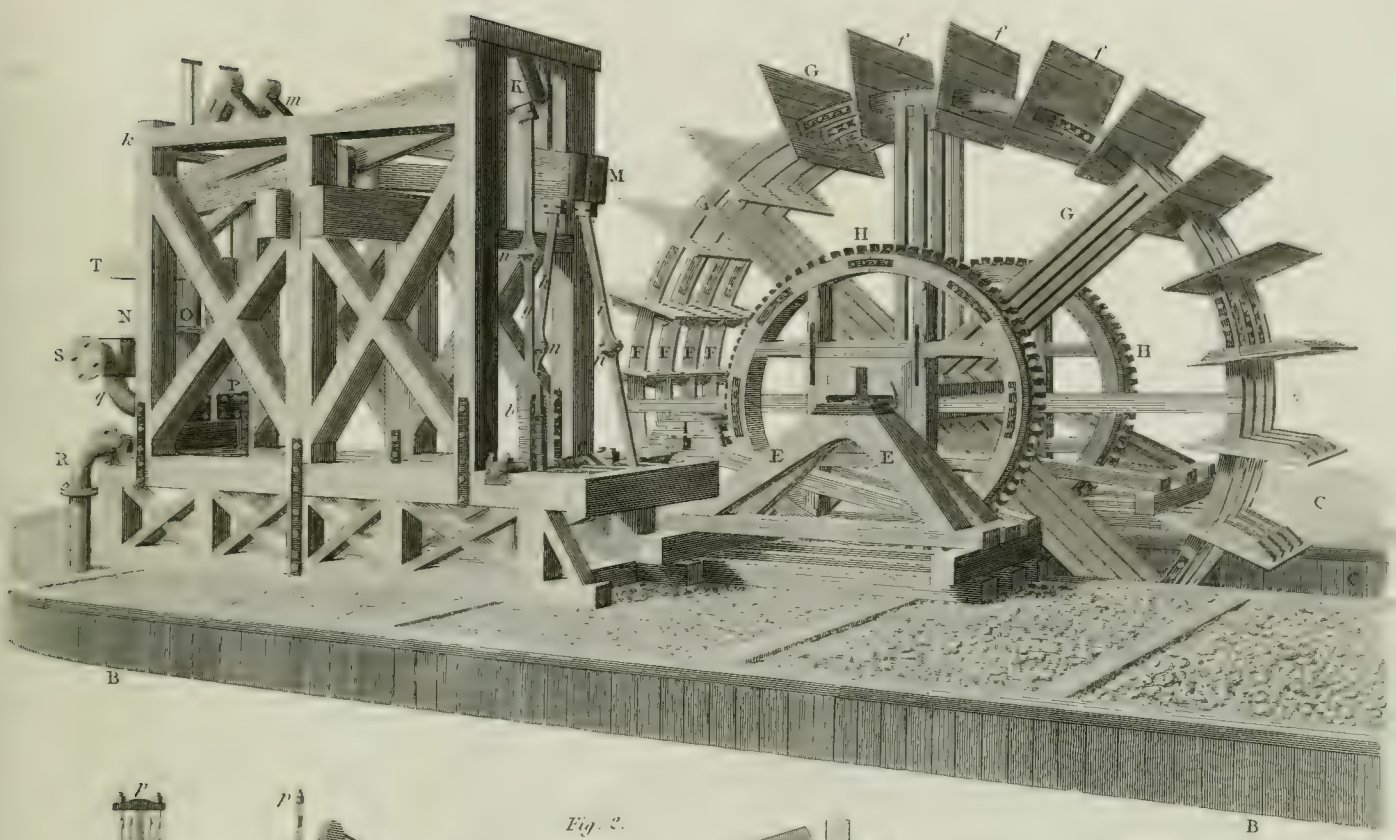
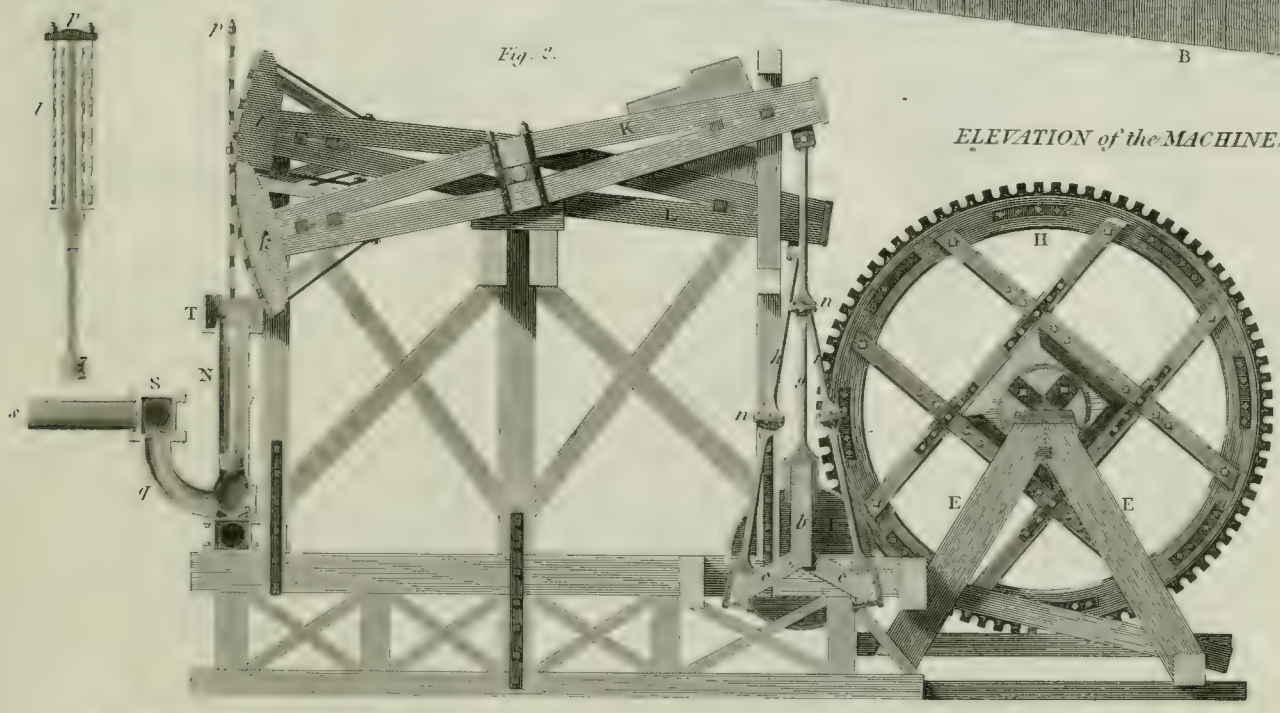


Fig. 2.

ELEVATION of the MACHINES.



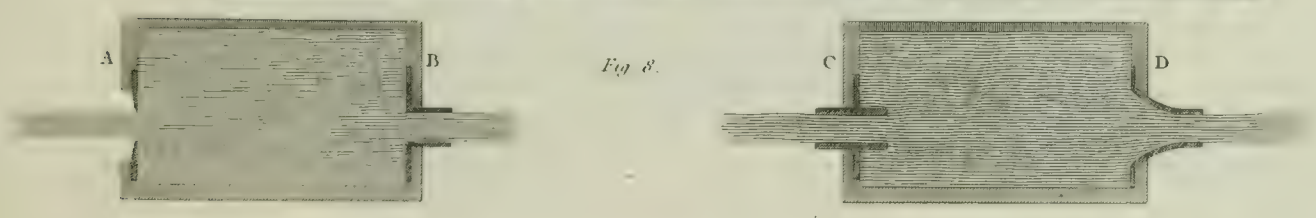
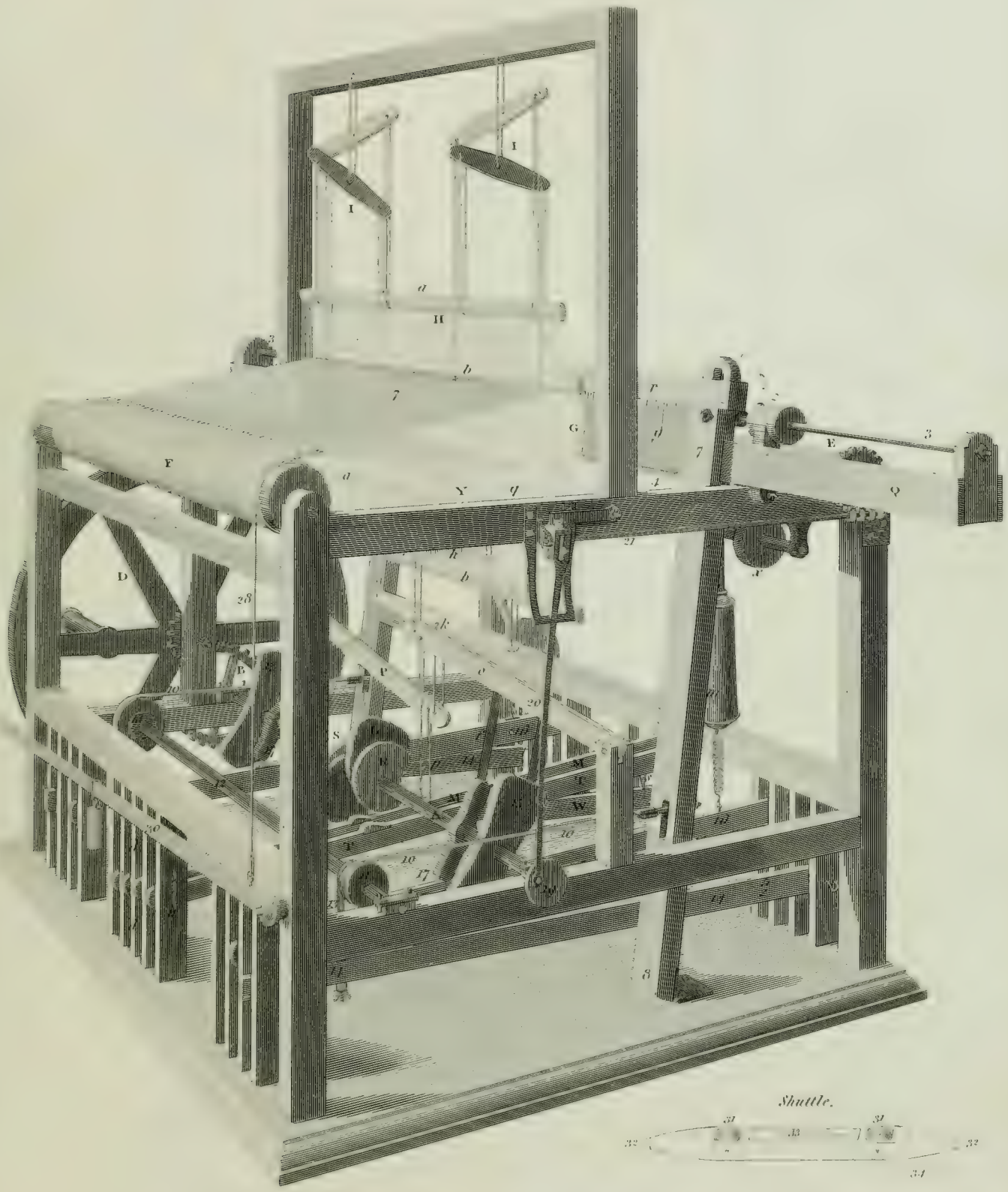


Fig. 8.

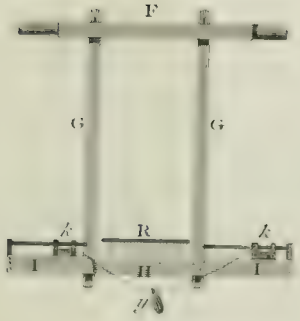
Foreq. delin. *Published as the Act directs, 1820, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.* *Lowry. Sc.*

Mr Austin's Engine Loom.



Published as the Act directs, 1824, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row, London.

Fig. 2



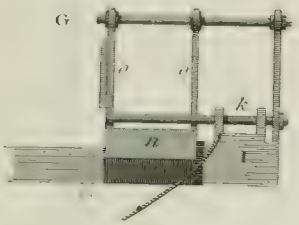
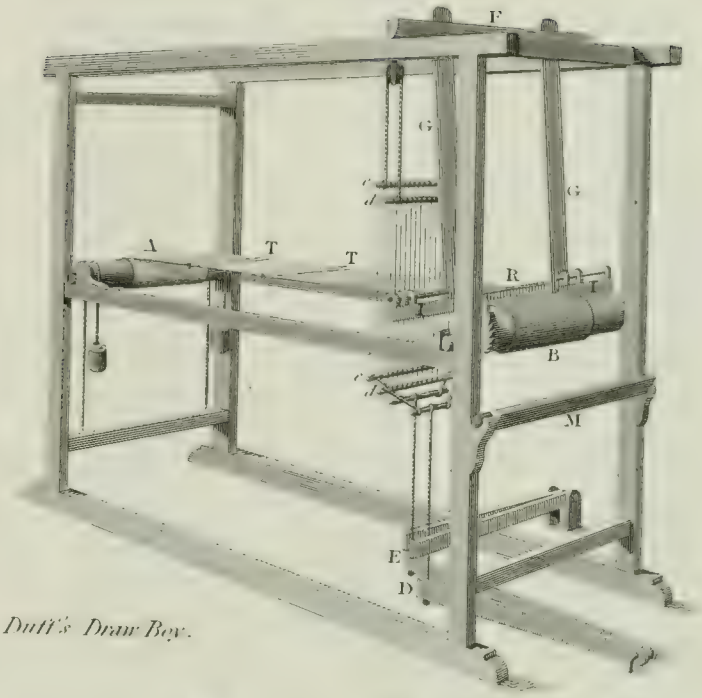


Fig 3

Fig. 1.



Duff's Draw Box.

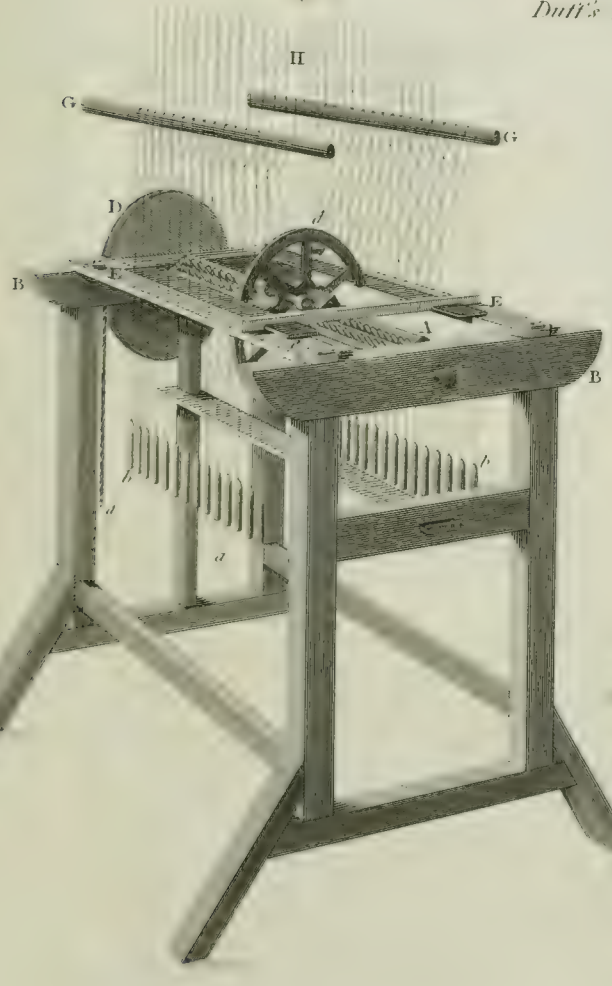
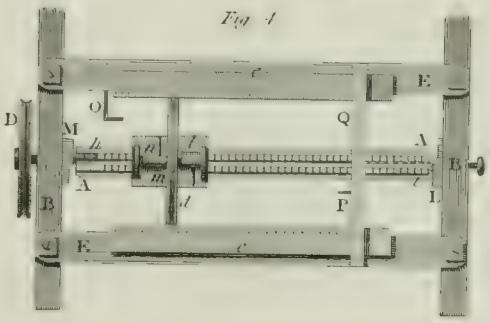
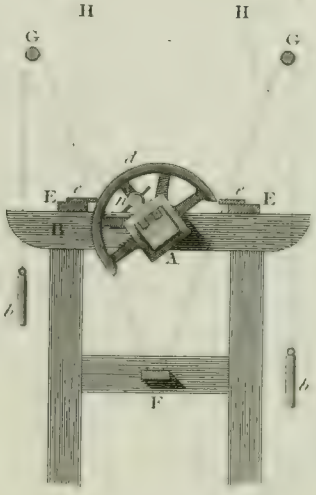


Fig 4





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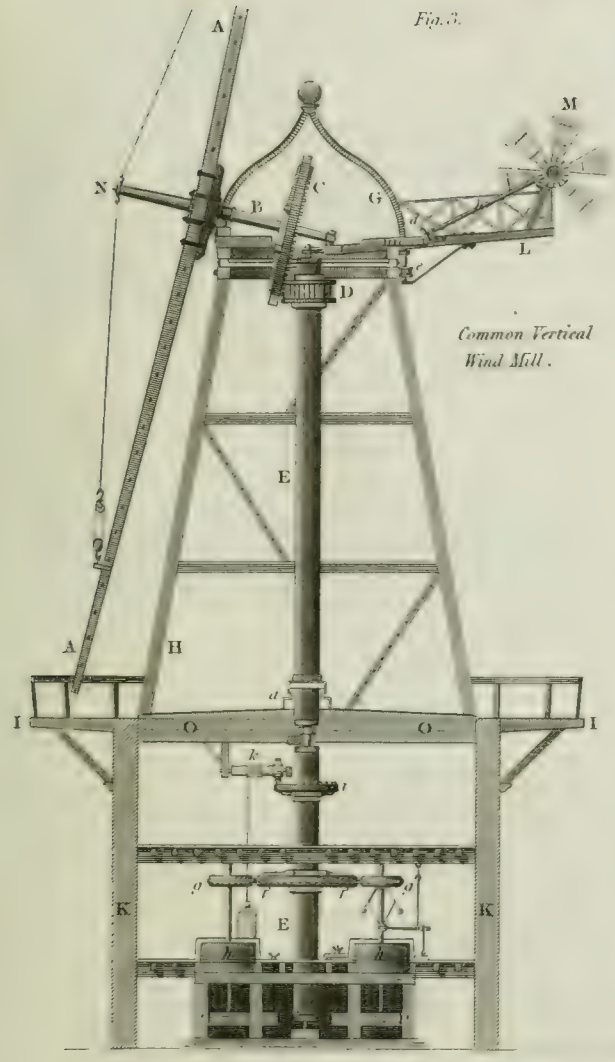
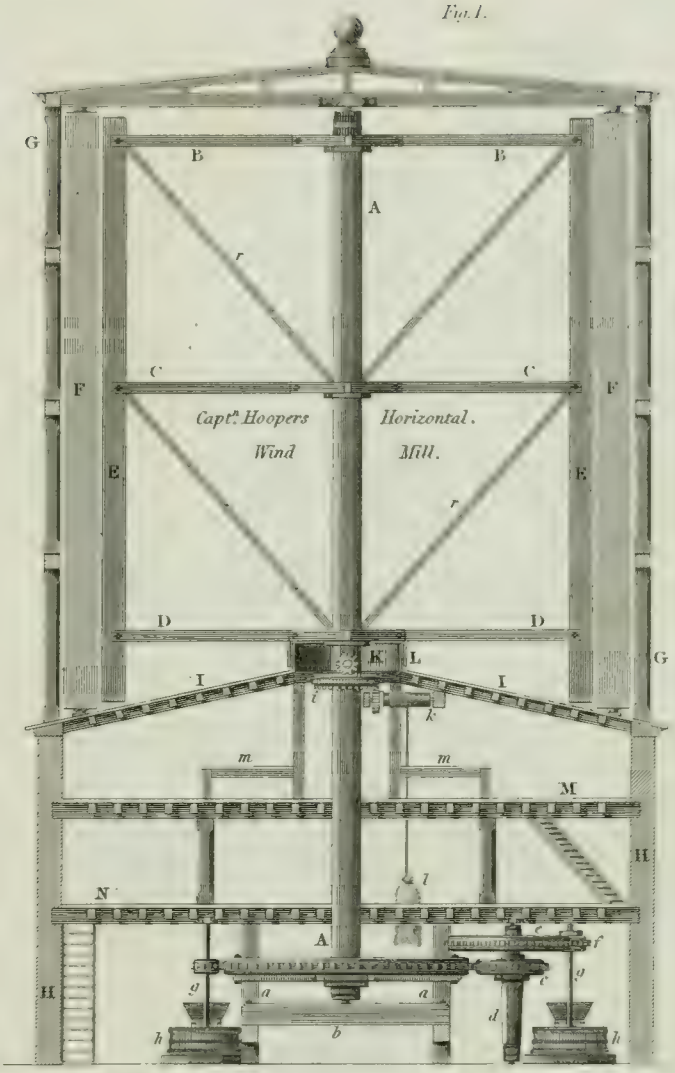
WIND MILL.

Fig. 3.



Common Vertical Wind Mill.

Fig. 1.



Capt.n Hoopers Horizontal Wind Mill.

Fig. 5.

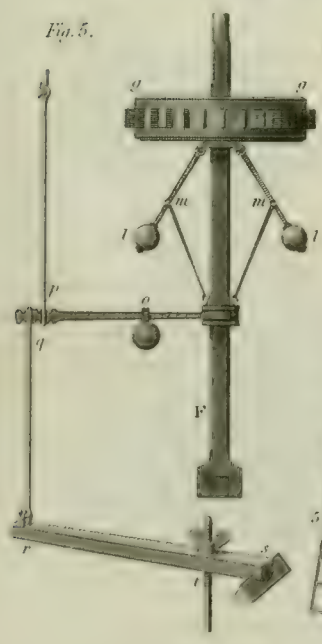


Fig. 4.

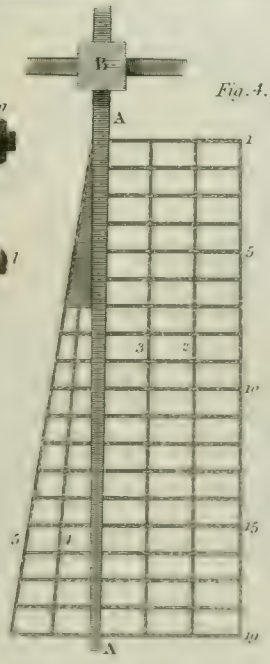
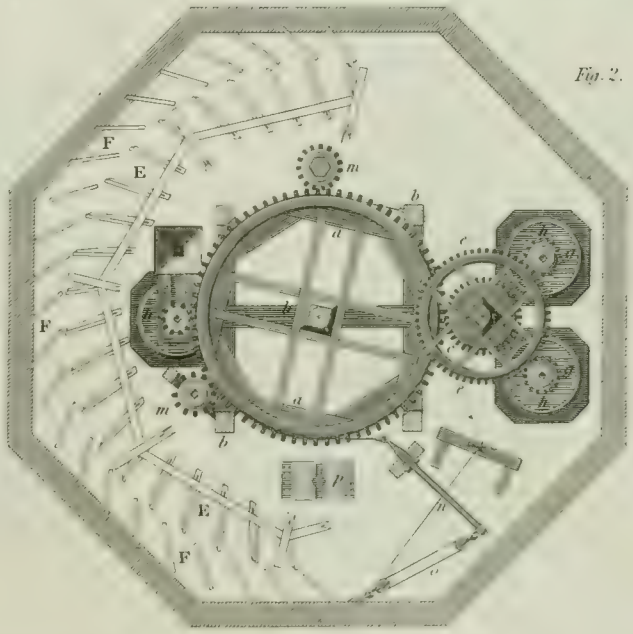


Fig. 2.



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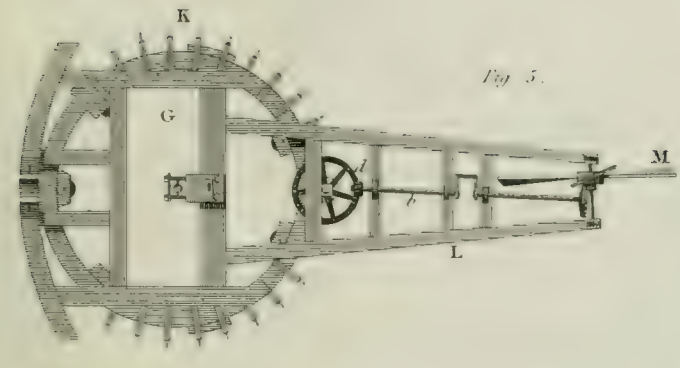
Lowry sculp.

WIND MILL.



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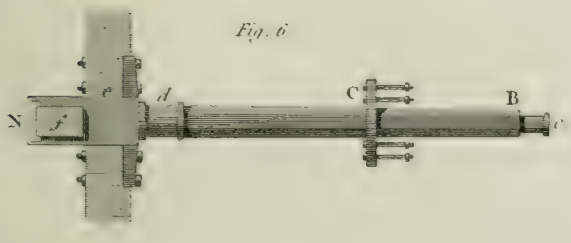


Fig. 6

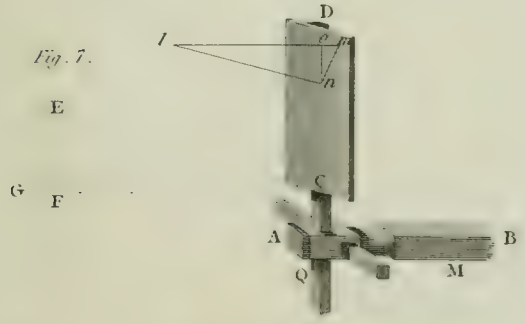


Fig. 7.

E

G F

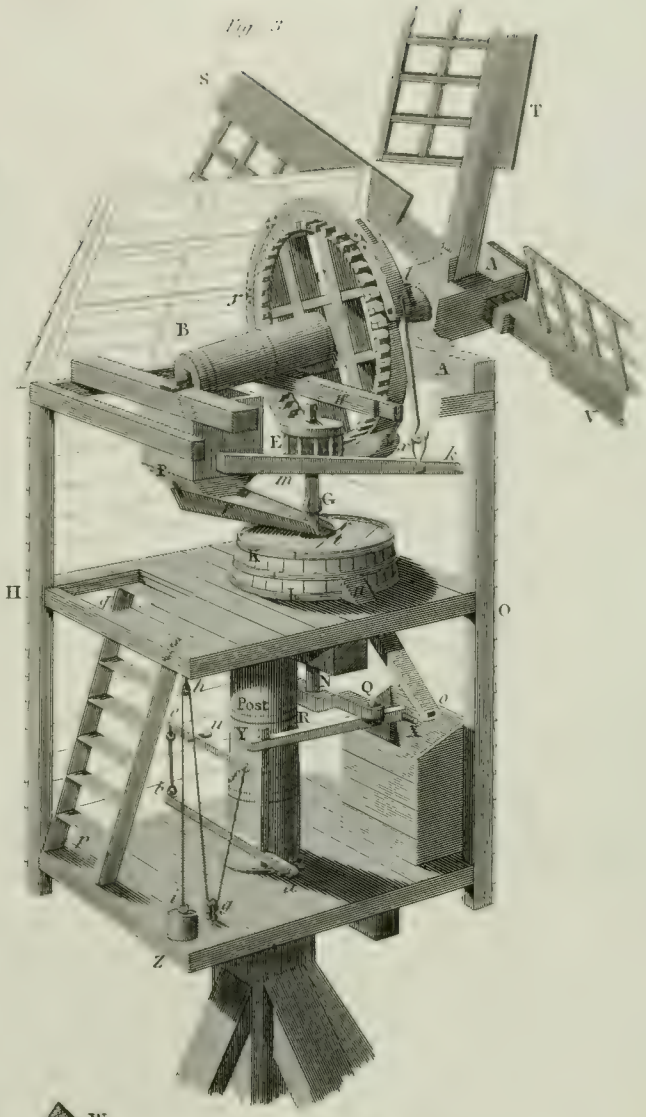


Fig. 3

Fig. 4.

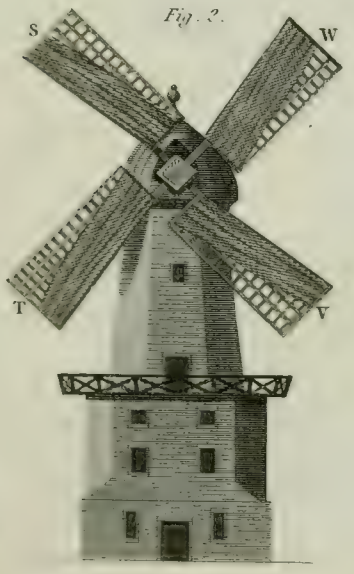
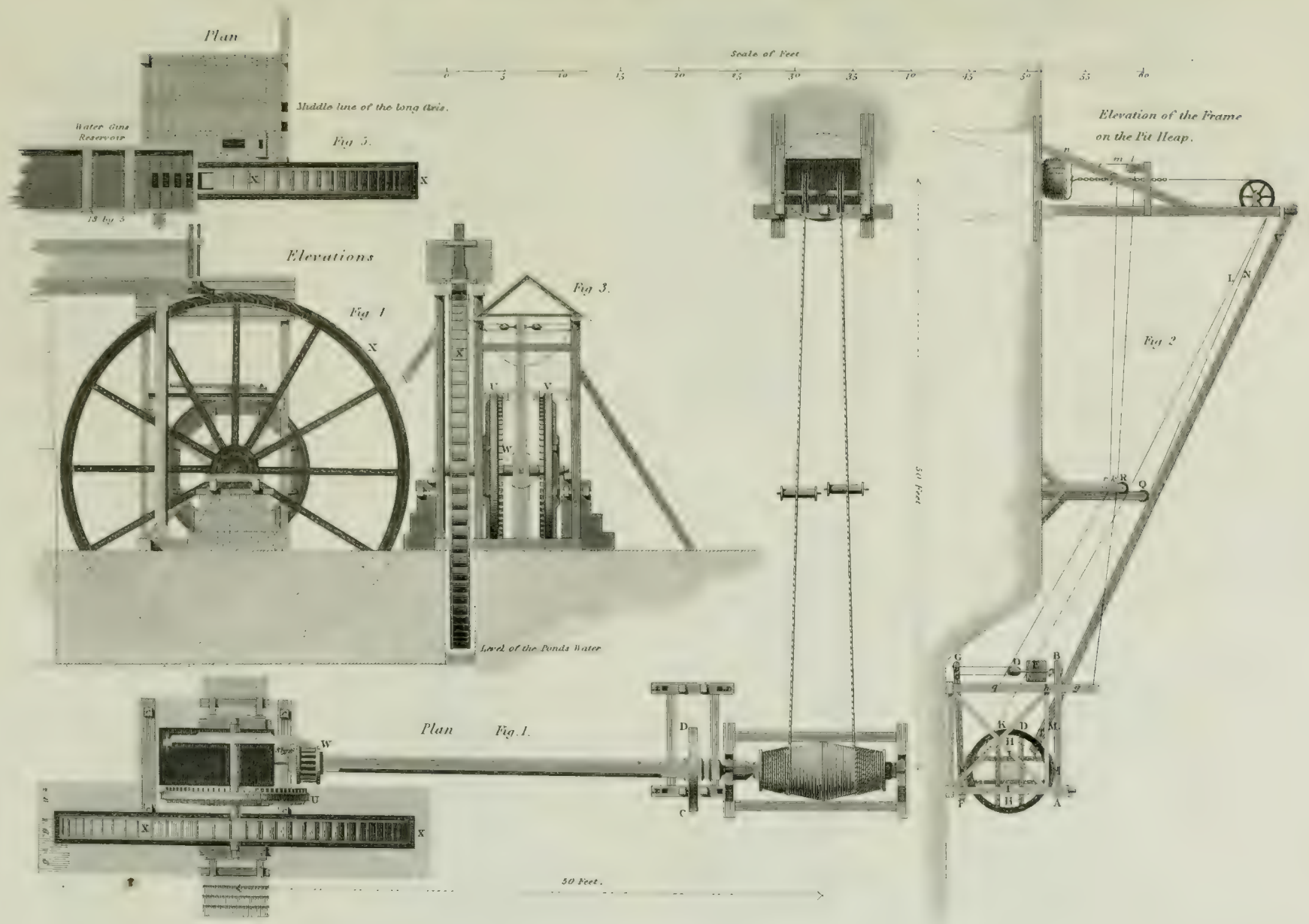


Fig. 2.

Fig. 1.

J. Farey, delin. Published as the Act directs, 1819 by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry, Sc.

Mr. Smeaton's design for a Water **GIN** *for drawing Coals from the Pits.*



J. Farey delin

Published as the Act directs, 1816, by Longman, Hurst, Rees, Orme, & Brown, Paternoster Row.

Lowry Sc.

Fig 2

Fig 13.

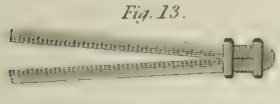


Fig 3

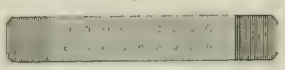


Fig 4

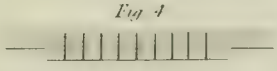
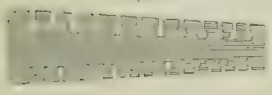


Fig 12



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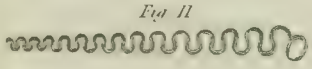


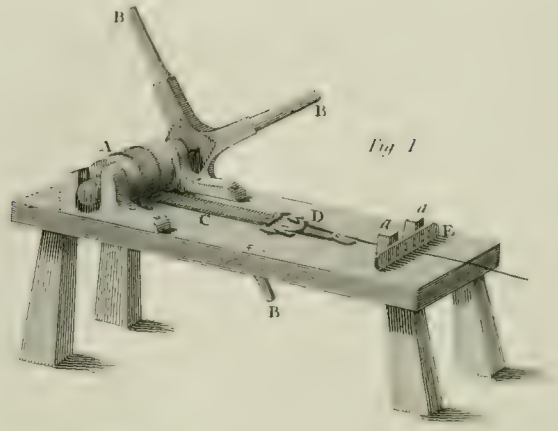
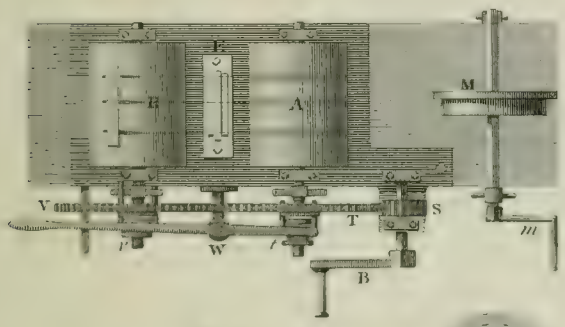


Fig 1



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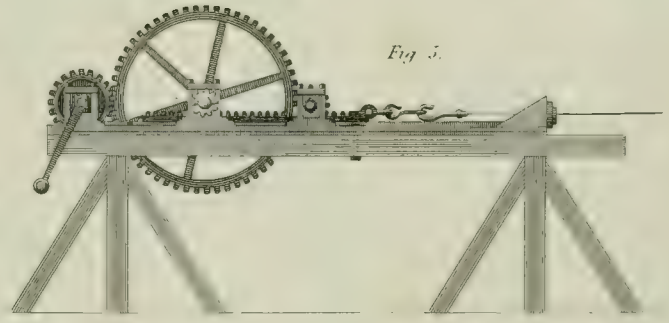

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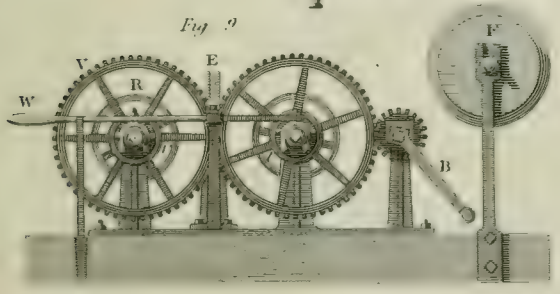


Fig 8

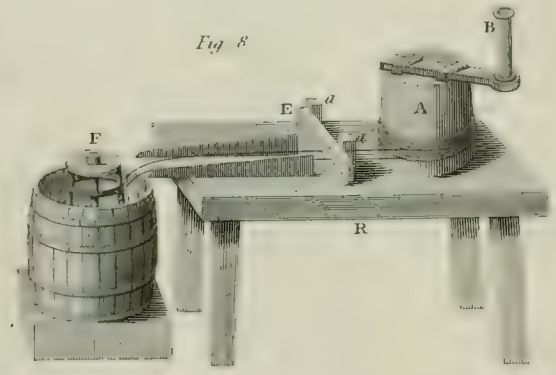
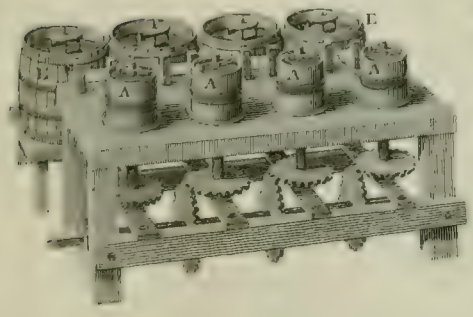


Fig 10



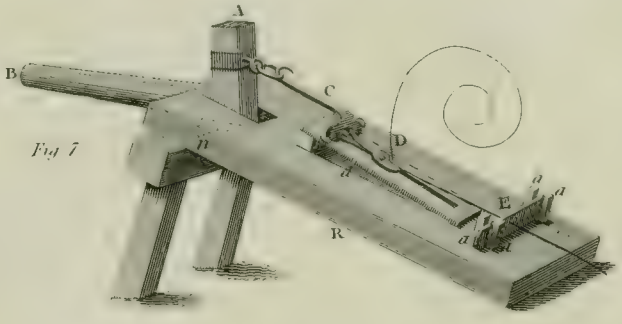
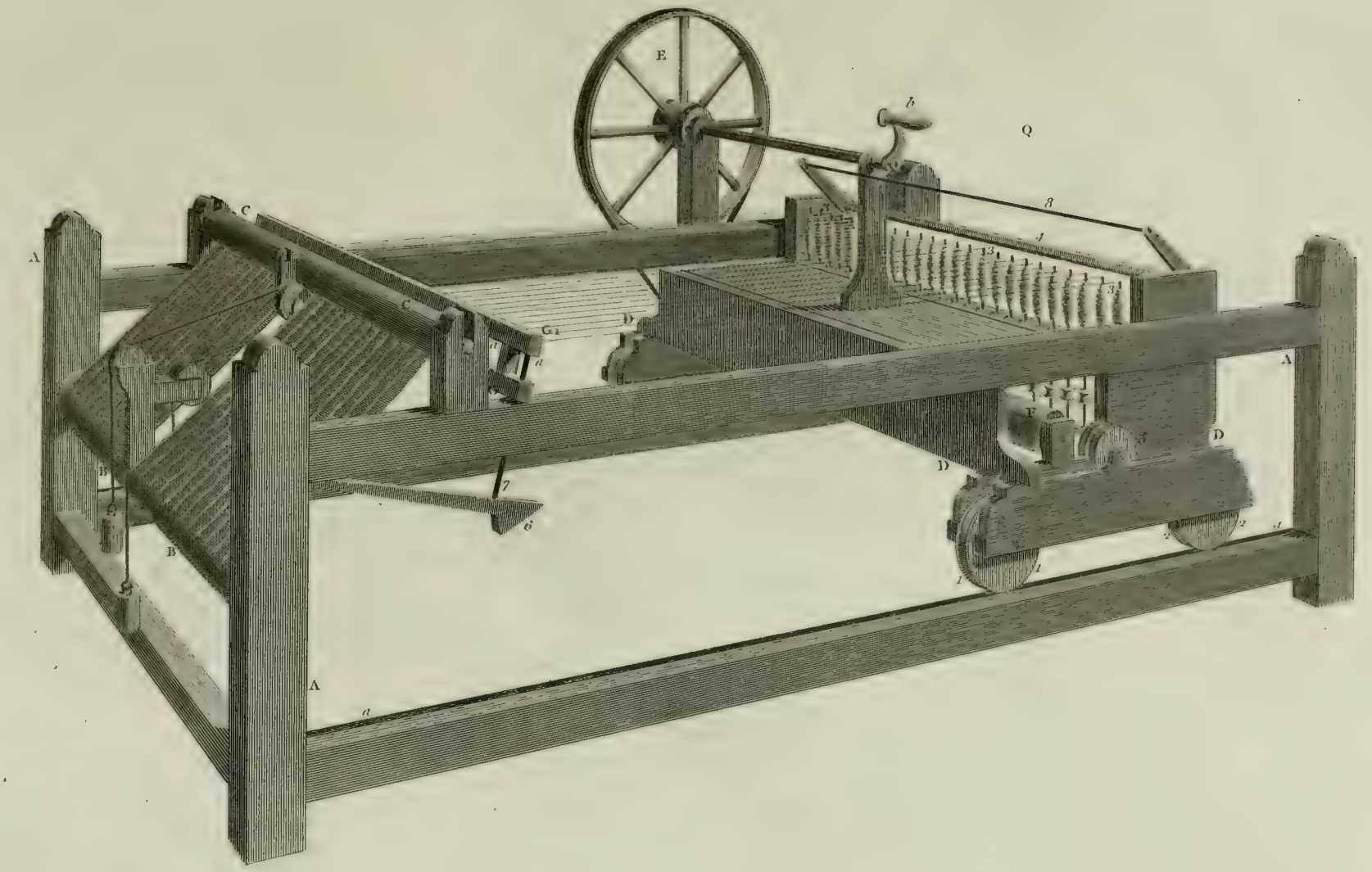


Fig 7

Farey, delin. Published as the Act directs, 1820, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. Lowry, sc.

WOOLLEN MANUFACTURE.

SLUBBING MACHINE OR BILLY.



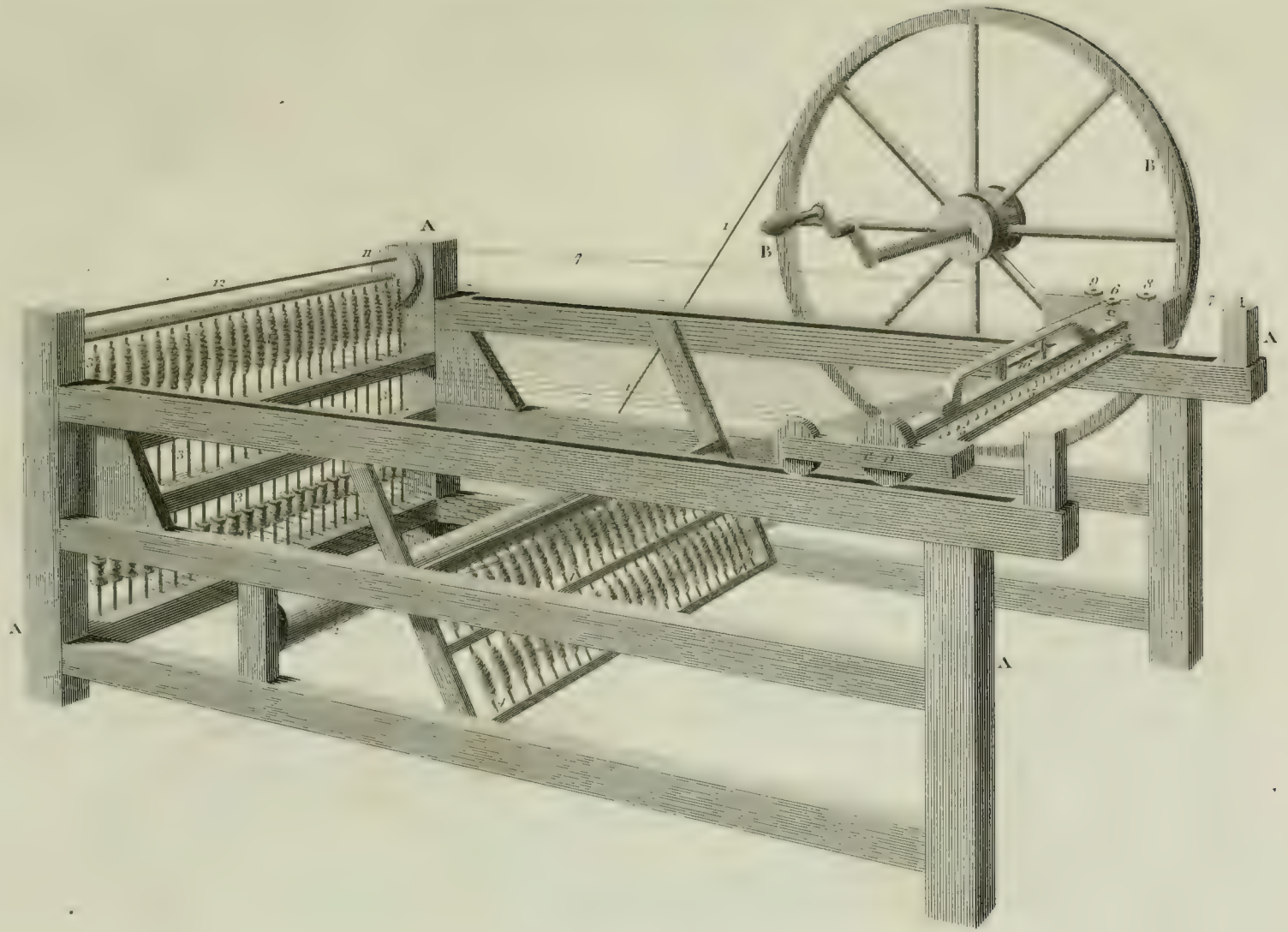
J. Herbert delin.

Published as the Act directs, 1811, by Longman, Hurst, Rees & Orme, Paternoster Row.

Engraved by Wilson Lowry.

WOOLLEN MANUFACTURE.

SPINNING JENNY.



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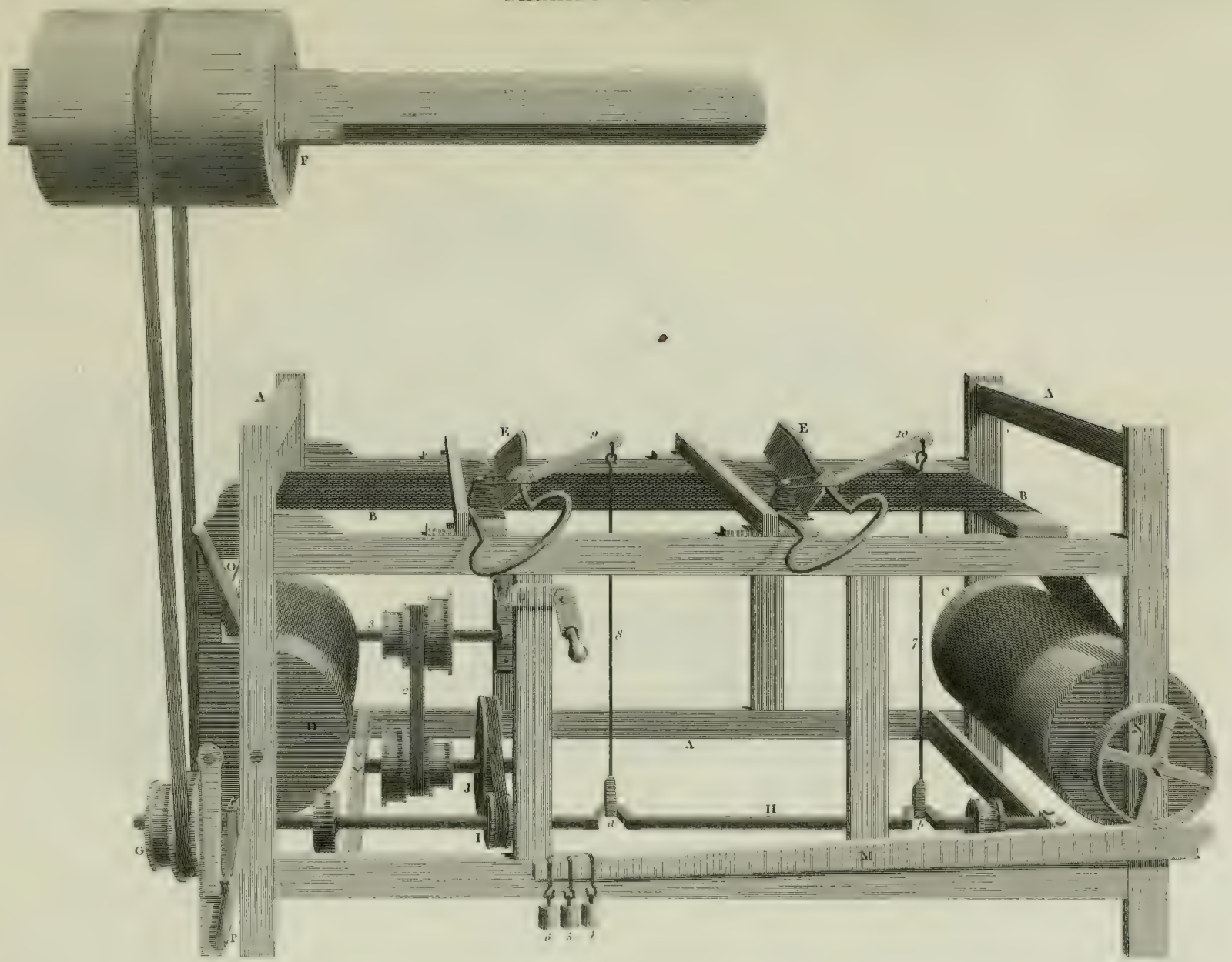
SHEARING MACHINE.

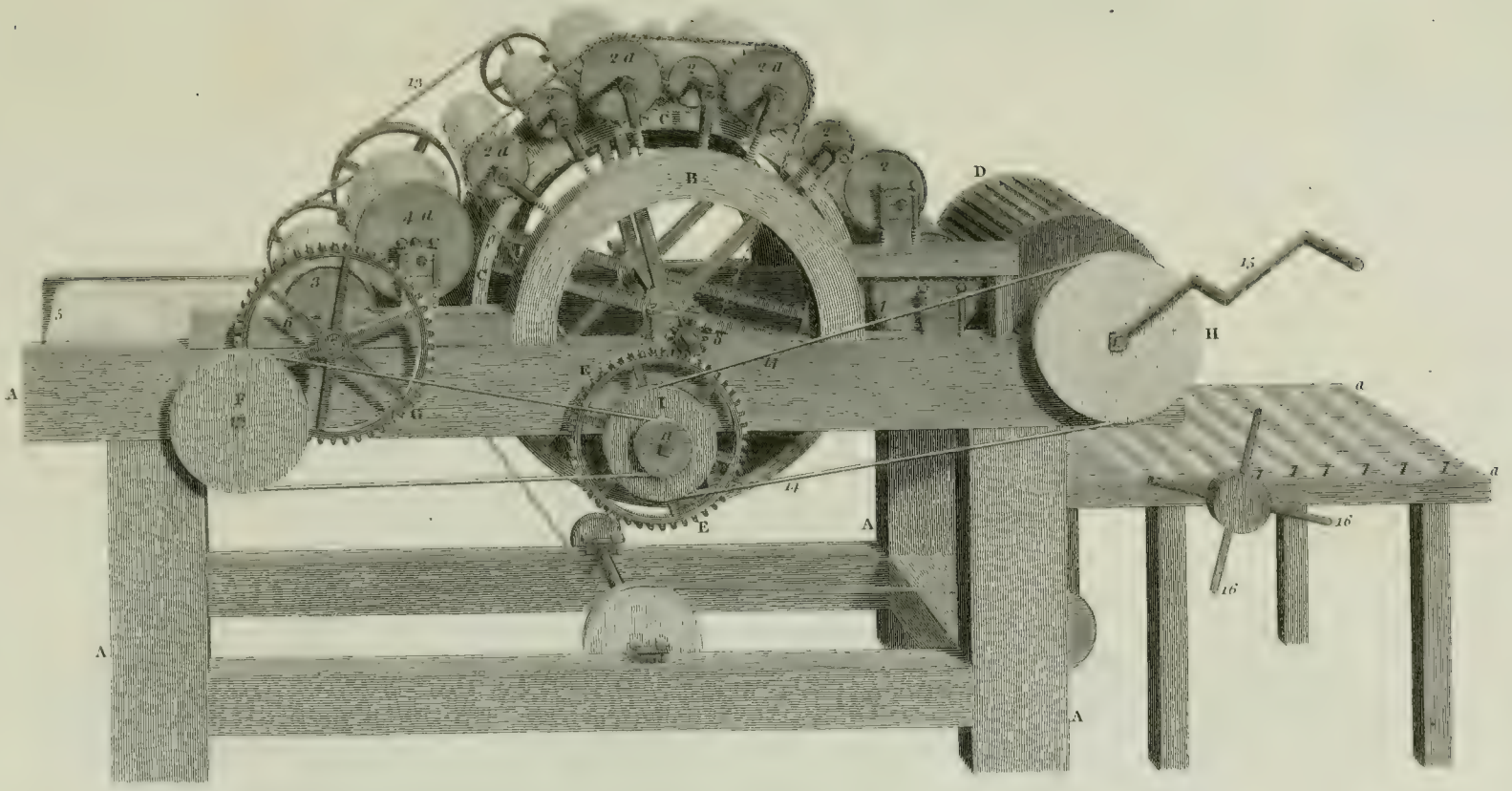


Published as the Act directs, 1811, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Engraved by Wilson Lowry.

WOOLLEN MANUFACTURE.

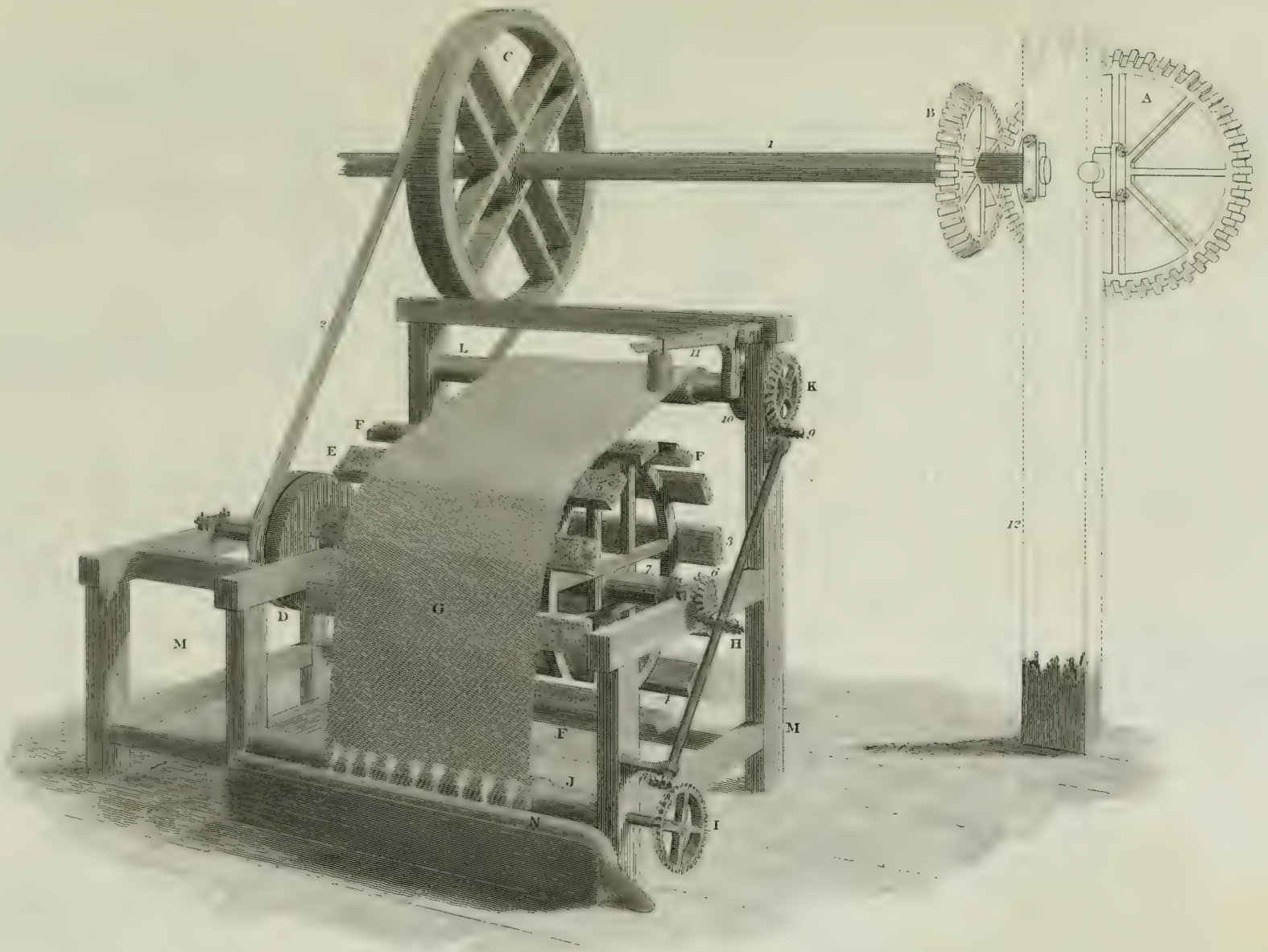
CARDING ENGINE.



J.D.Herbert delin.

Published as the Act directs, 1809, by Longman, Hurst, Rees & Orme, Paternoster Row.

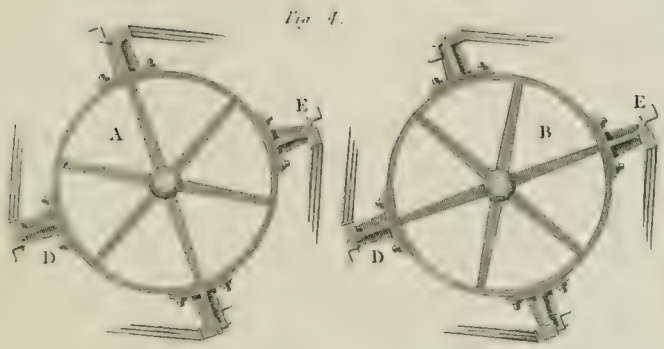
Engraved by Wilson Lowry.



Published as the Act directs, 1815, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row.

Lowry Sculp.

Fig 4.



BREAKING Frame.

Fig 2

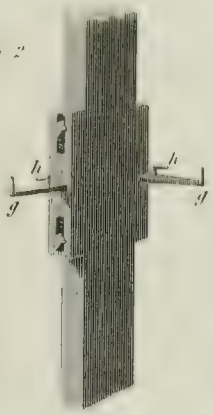


Fig 3.

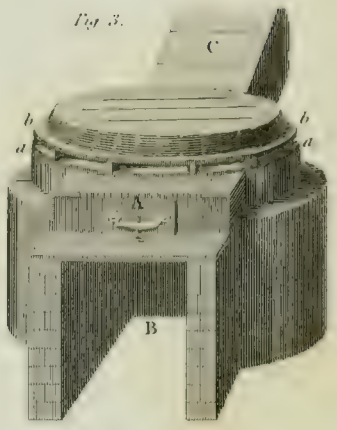


Fig 5.

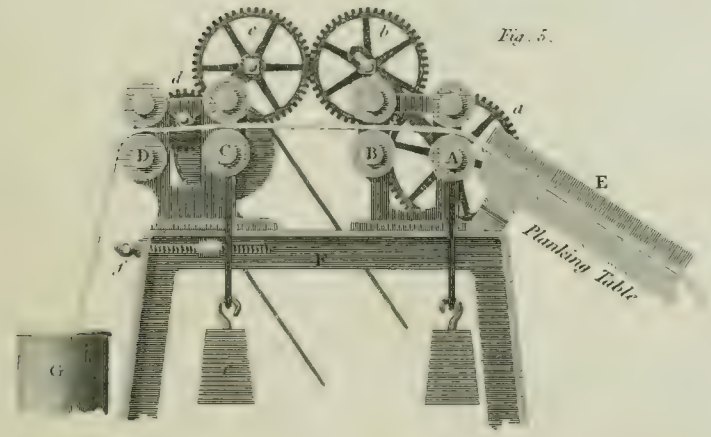
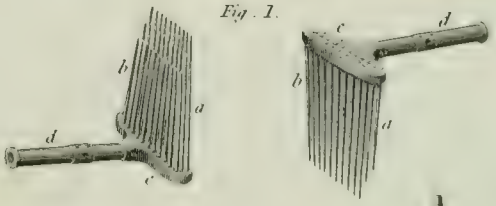


Fig 1.



SPINNING Frame.

Fig 7.

ROVING Frame.

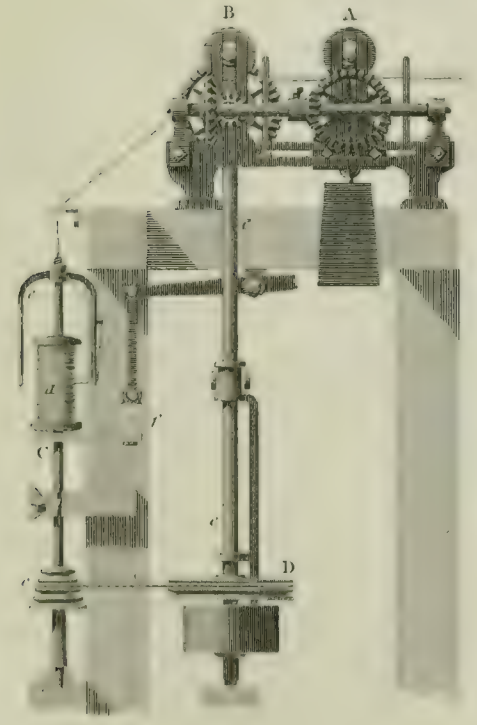
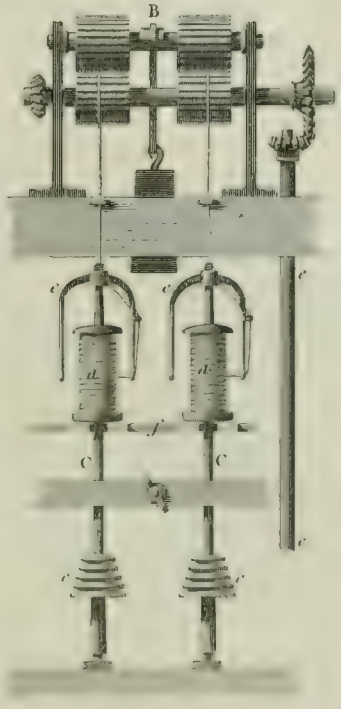
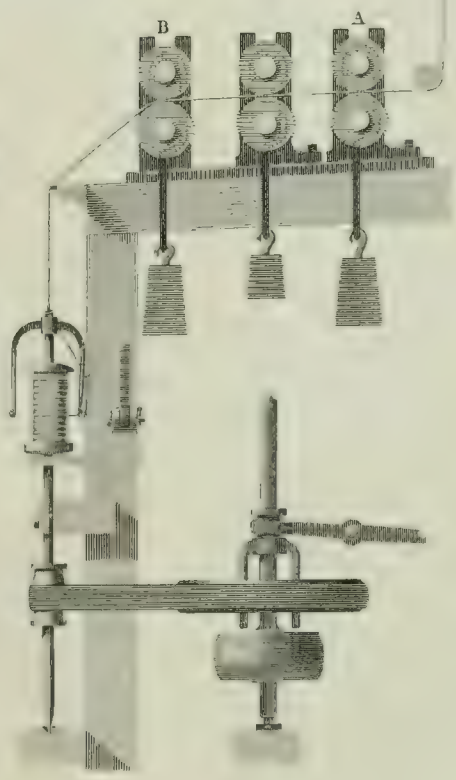


Fig 6.

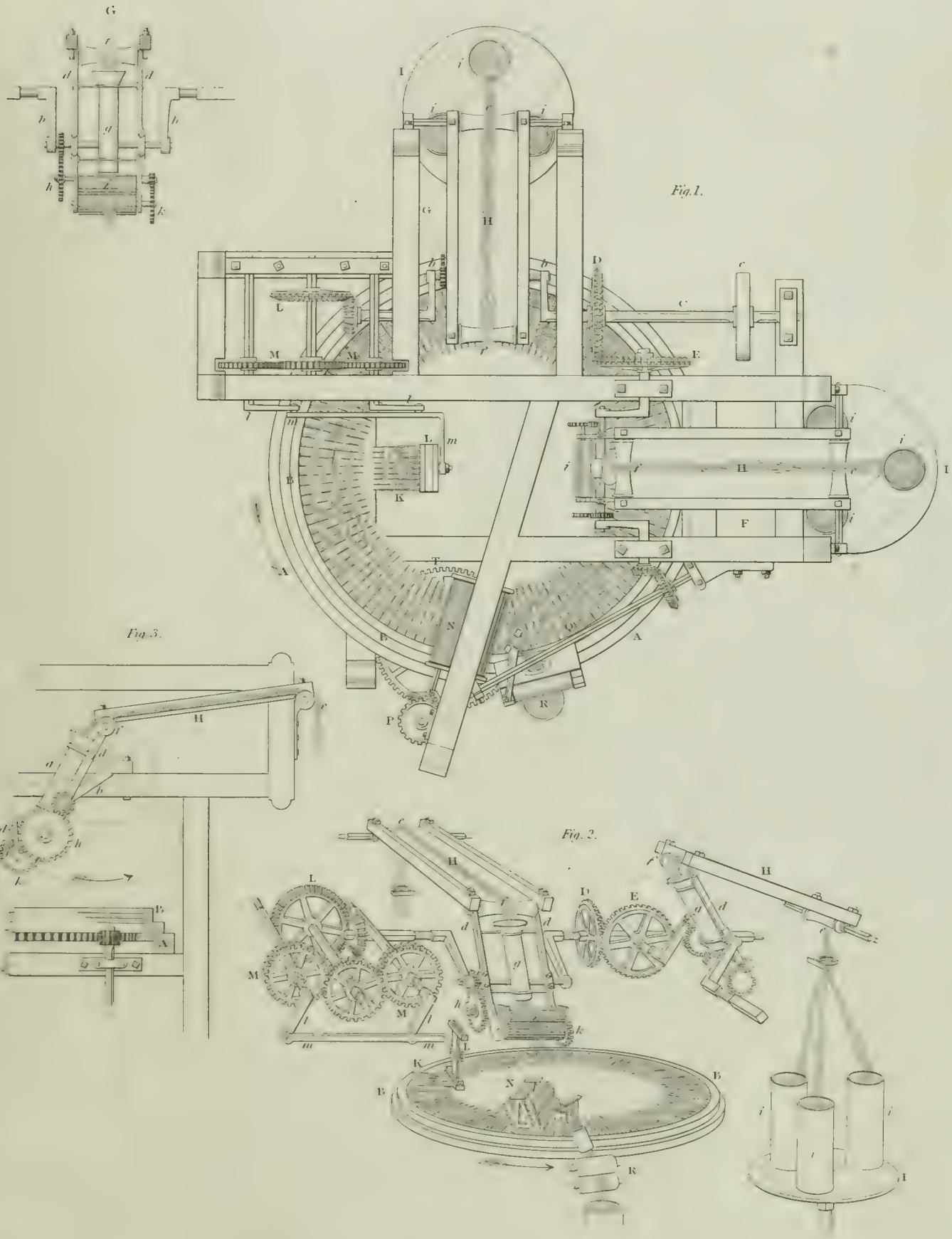




J. Farey del. Published as the Act directs, 1829, by Longman, Hurst, Rees, Orme & Brown, Paternoster Row. W. Lowry, Sc.

WORSTED MANUFACTURE.

CARTWRIGHT'S COMBING MACHINE.



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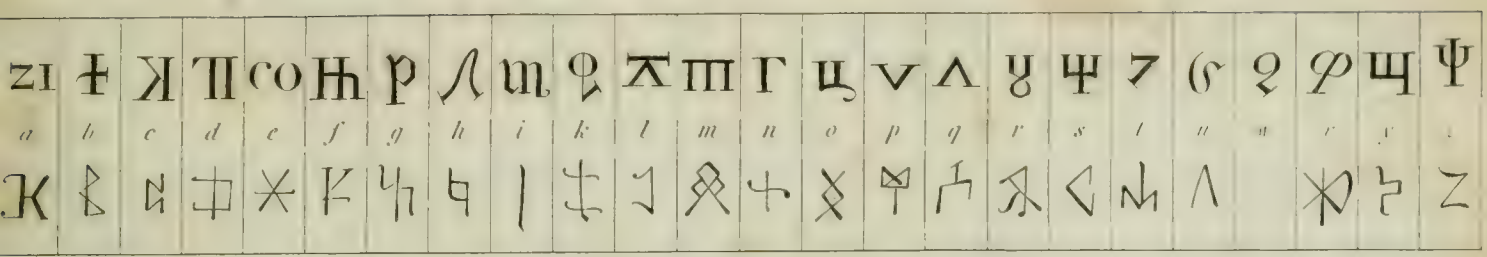
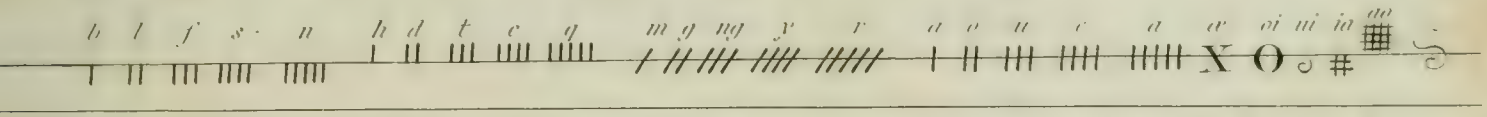
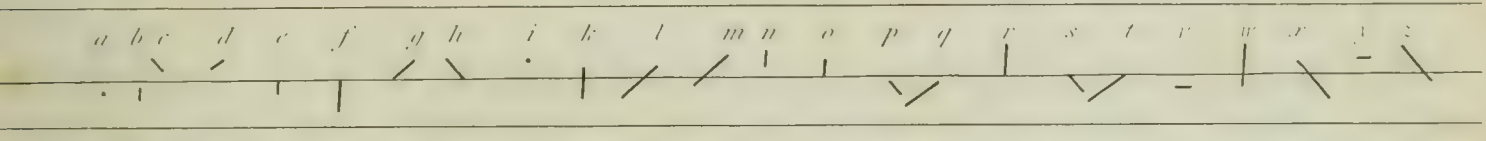
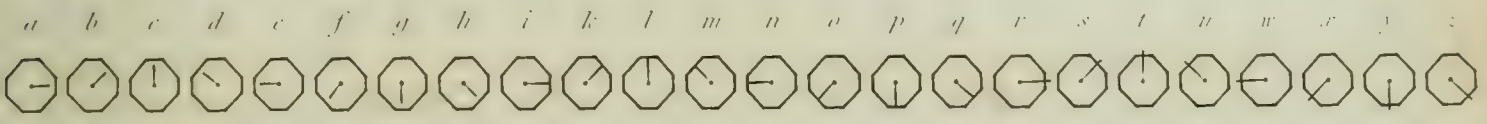
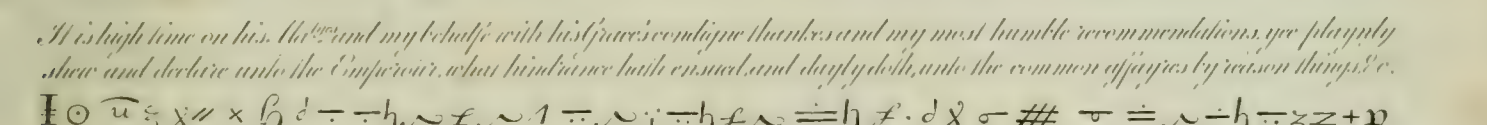




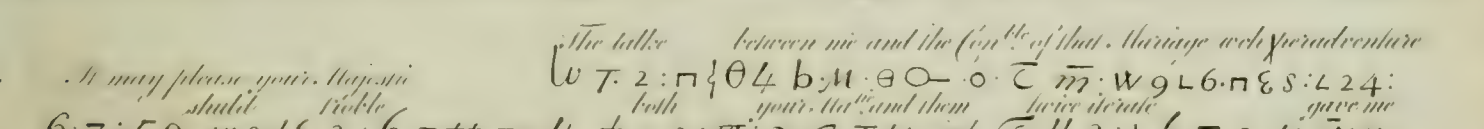




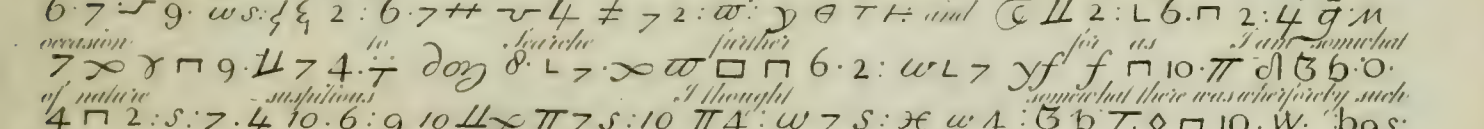
It is high time on his Ma^ties and my behalfe with best graces condigne thankes and my most humble recommendations yee playnly shew and declare unto the Emperour, what hindrance hath ensued and daylye doth, unto the common affayres by reason things &c.



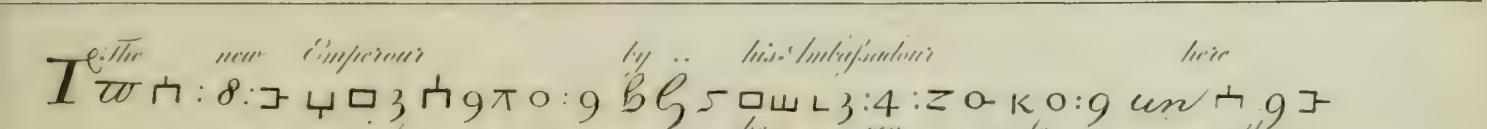
The talke between me and the Ld of that Marriage wch peradventure It may please your Majestie



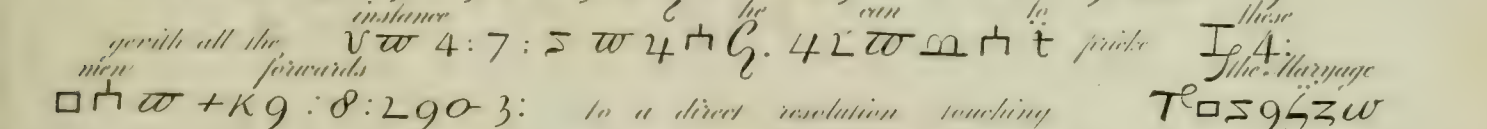
shalbe Treble both your Ma^ties and them twice iterate gave me occasion to Iterate further for us I am somewhat of nature suspitious I thought somewhat there was wherefore such



The new Emperour by his Ambassadour here

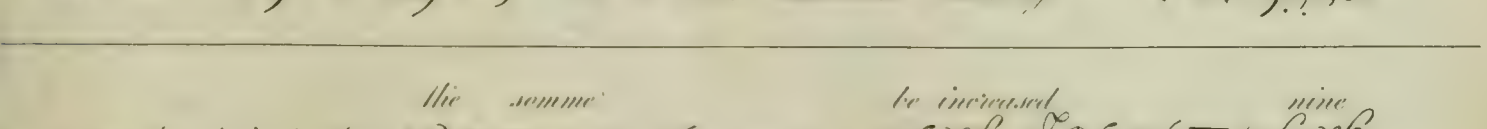


yeerith all the instance he can to pricke these men forwards the Marryage

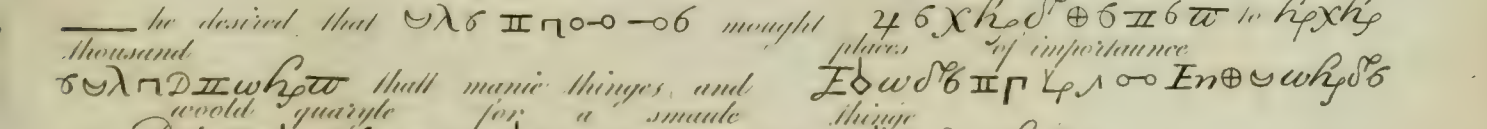


to a direct resolution touching

the somme be increased nine



he desired that mought Thousand places of importance



thatt manie thinges, and woold quarryle for a smaule thinge else

Sutfield sculp

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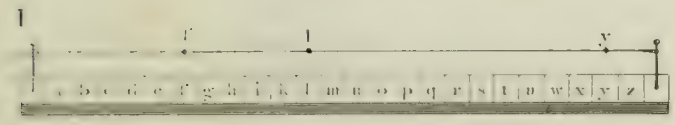
1



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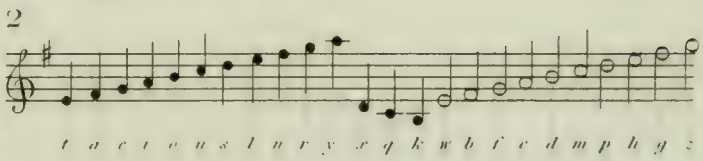

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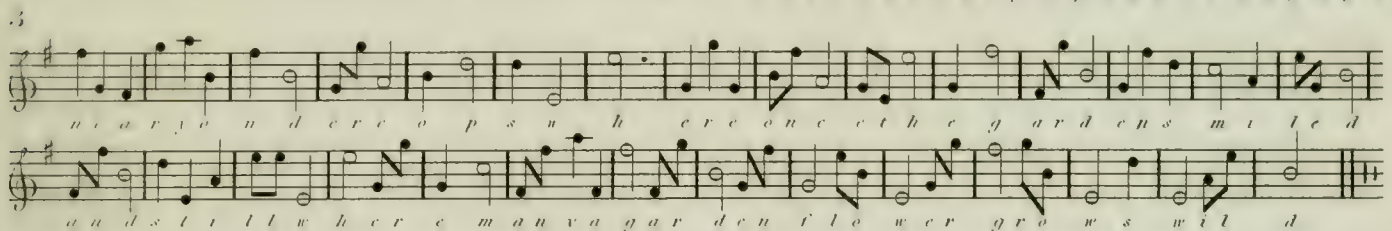

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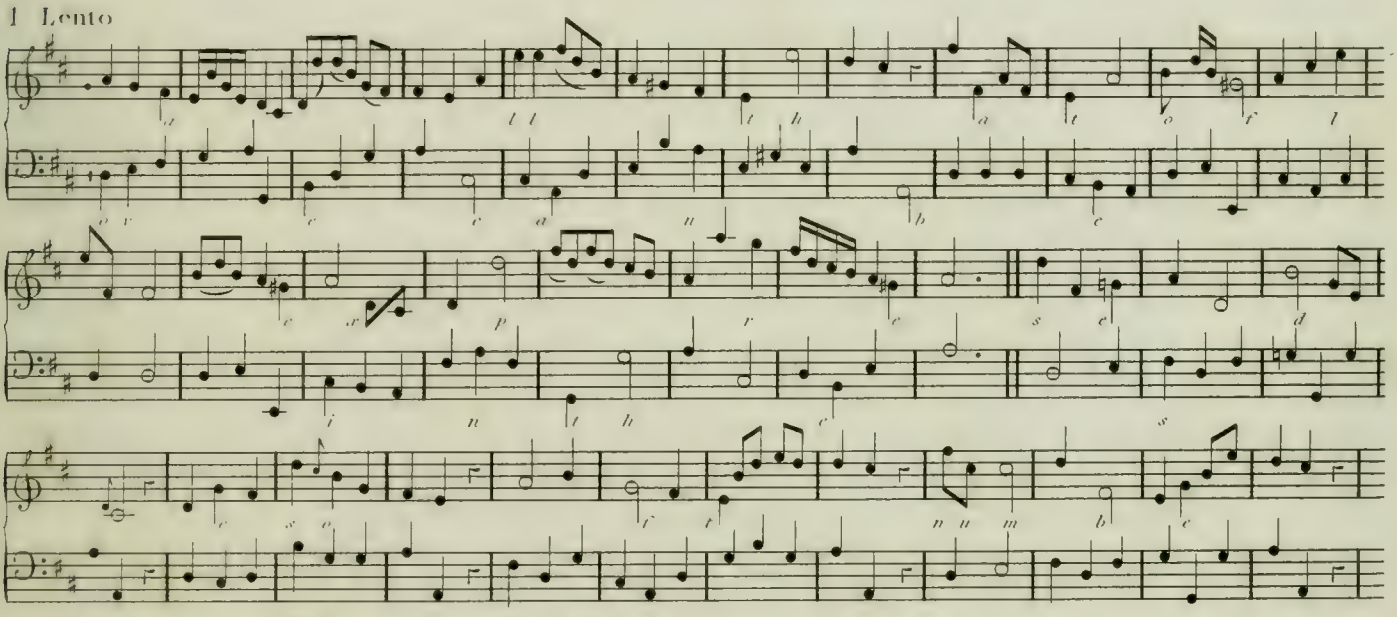

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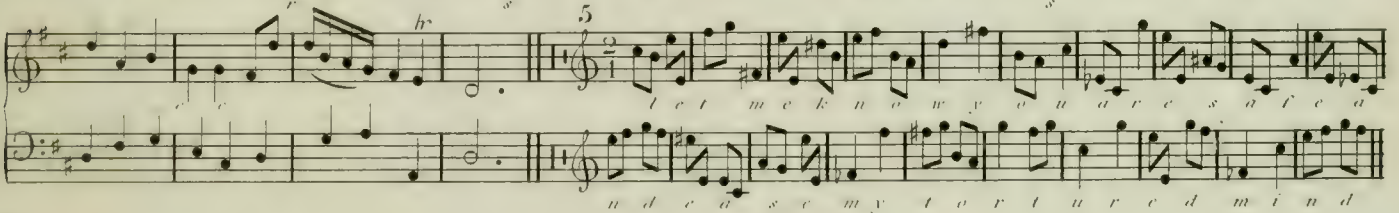

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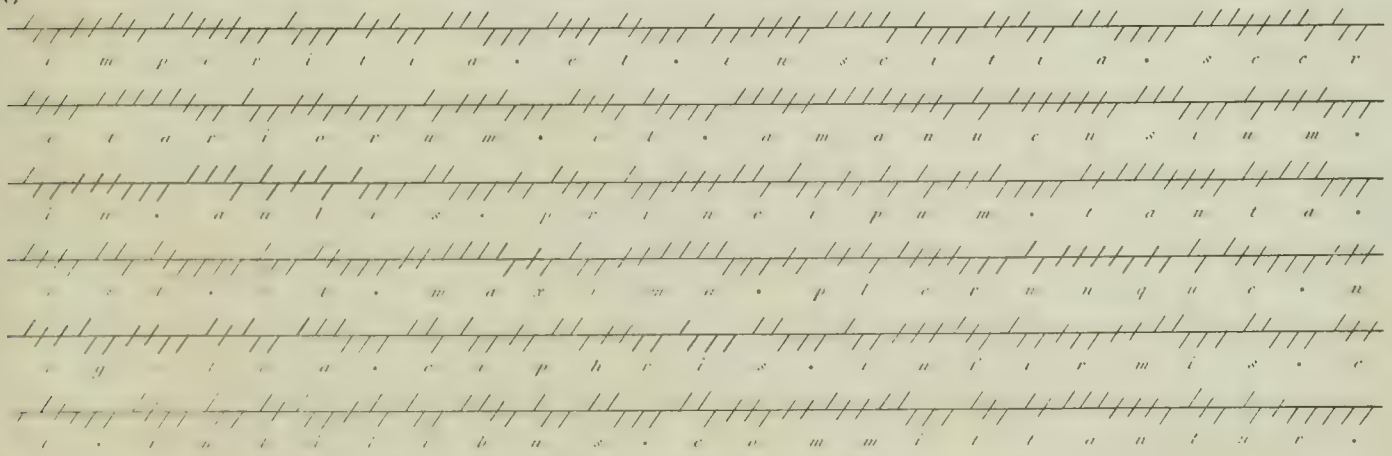

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Alphabet and Key.

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g m t	*p ä h*	*c i a*
j p u	*d a n*	*h o e*
k d y	*f e r*	*n s i*
q f a	*l i s*	*r l o*
v l e	*h o t*	*s u a*
w h i	*n e u*	*t a e*
x n o	*r d a*	*u e i*
z r ·	*s f e*	*a i o*

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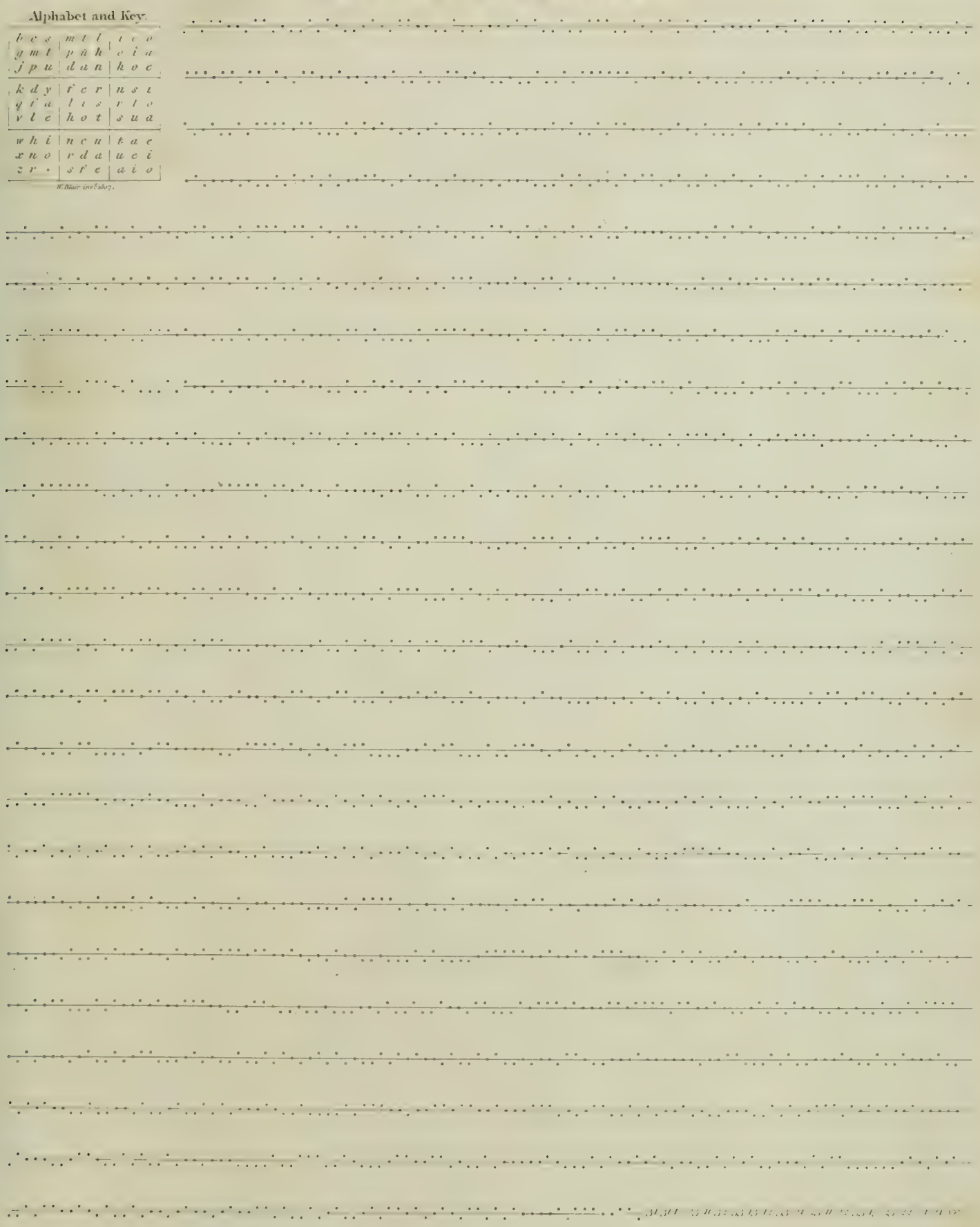

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